THE MANAGEMENT OF INFANCY

EDITED BY SIR ARTHUR MITCHELL, K.C.B., M.D., LL.D

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MANAGEMENT OF INFANCY

PHYSIOLOGICAL AND MORAL

INTENDED CHIEFLY FOR THE USE OF PARENTS

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BY

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ABRIDGED AND EDITED BY

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PREFACE

THIS Edition of Dr. Andrew Combe's work on *The Management of Infancy* is an abridgment of the Tenth Edition, which was revised and edited by Sir James Clark, Bart., K.C.B., M.D., F.R.S., in 1870, and which was by permission dedicated to Her Majesty the Queen. In his Letter of Dedication Sir James Clark refers to Her Majesty's known interest in the progress of Sanitary Science, and he says that the "management of her own family affords a bright example to parents, and a living testimony of the wisdom of being guided, in the treatment of their offspring, by the laws of health so clearly indicated by the Creator."

Perhaps the most valuable of all Dr. Combe's works is that on *The Management of Infancy*. It was first published in 1840, and its sale still goes on. Of exceedingly few books, which have any relation either to Medicine, Science, or Philosophy, can such a thing be said. But all that this Book contains is still as fresh and true as when it was written; and it is not seen why it should not have other fifty-five years of life.

The First Edition of the work, in 1840, was dedicated to

Sir James Clark, partly from personal friendship, but chiefly because Sir James had taken such "a deep and active interest in the improvement of medical education, and in elevating the character, extending the scope, and increasing the usefulness of the medical profession," and because he had "shown that when medicine shall be cultivated in a more liberal spirit, and its principles recognised as furnishing the only solid foundation for a proper system of physical, moral, and intellectual education, it will become one of its noblest uses, and one of its greatest privileges, to be instrumental, not more in the prevention of disease and suffering, than in contributing to the general happiness and permanent advancement of the human race."

After Dr. Combe's death Sir James Clark very appropriately and successfully became the Editor of successive Editions, and in 1871 a reprint of the Tenth Edition in closer type and on thinner paper appeared as a "People's Edition"; but, cheap as this was, it is now thought desirable by The Combe Trustees that an Edition at a much lower price should be issued, so as to bring the work easily into the hands of working people.

In shortening the book, I have endeavoured to do only what I believe the Author himself would have done with the same object in view; and I think that I have succeeded, not only in keeping his teaching complete, but in giving it very nearly in his own words.

At the end of the work Dr. Combe points out that he regarded a degree of completeness in its different parts as desirable, and that this occasionally led to repetition of what

had gone before. No effort has been made to shorten the book by cutting out such repetitions, because they increase the value of the book. And, for a like reason, the sentences, or parts of sentences, which Dr. Combe gave in italics, in order to fix attention on them, have been kept in that type.

To Dr. LESLIE OGILVIE, Physician of the Paddington Green Hospital for Sick Children, London, I am indebted for reading the proofs.

A. M.

October 1896.

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THE

MANAGEMENT OF INFANCY

CHAPTER I

INFLUENCE OF THE CONSTITUTION OF PARENTS ON THE HEALTH OF THEIR CHILDREN

In looking around upon society, we observe some families apparently possessing every external advantage, yet in which it is found difficult to rear the children to maturity. By some form of disease one after another is carried off; while those who survive are characterised by great delicacy of constitution. In contrast to this, we meet with other families, seemingly much less fortunate in their outward circumstances, but in which one child after another grows up as if no such thing as disease existed. That such remarkable differences occur must have been observed by all who attend to what is passing around them; and the important question arises: On what do they depend?

To some extent, at least, we have no difficulty in answering the inquiry. The very terms of our statement imply that the unusual susceptibility of disease in the one case, and the immunity from it in the other, arise from no peculiarity of treatment or external circumstances, but are dependent on some inherent difference of constitution that must have been derived from one or both parents. So manifest is the influence of hereditary constitution upon the qualities of the offspring, that from the earliest ages it has

attracted the attention of mankind. Apparent exceptions occur, in which the children differ widely from their progenitors; but these are few, and may for the most part be easily explained.

Assuming, then, the reality of *Hereditary Influence*, let us inquire what are the conditions in the parents which affect powerfully the health of the child.

The following are the most deserving of notice :—

1. Natural infirmities of constitution, bodily and mental, derived from their own parents.
2. Premature marriages, especially of delicate persons, and of those strongly predisposed to hereditary disease.
3. Marriages between persons too nearly allied in blood, particularly where they are descended from an unhealthy race.
4. Marriages contracted too late in life.
5. Great disproportion in age between the parents.
6. The state of health of the parents at the time of procreation.
7. The state of health and the conduct of the mother during pregnancy.

HEREDITARY PREDISPOSITION.

The influence of original constitution is often manifested in the almost inevitable destruction which awaits the children of certain families about the period of adolescence. One after another drops into the grave from consumption, though every precaution has been used to ward off the fatal malady. The principle is also exemplified, in its brighter aspect, in the histories of long-lived persons, many of whom are found to have been descended from long-lived ancestors; in fact, nothing is more certain than that, *other circumstances being favourable, robust and healthy parents have robust and healthy children.* This law, indeed, holds good throughout animated nature. In the cultivation of plants, quite as much importance is attached to the quality of the seed as to a good soil and good husbandry; while in rearing the lower animals, we calculate with certainty on the reappearance of the qualities of the parents in their young. Man is no exception to the law; and it is a false and injurious delicacy to turn away from a truth which is so influential on happiness, and which has long forced itself

on the notice of physiologists and physicians. "Parents," says Dr. Gregory, "frequently live over again in their offspring; for children certainly resemble their parents, not merely in countenance and bodily conformation, but in the general features of their minds, and in both virtues and vices."[1]

The most remarkable example of the hereditary transmission of qualities with which I am acquainted is that of a blind man called Moses Le Compte, whose *thirty-seven* children and grandchildren became similarly affected. In all of them the defect of sight began about the age of fifteen or sixteen, and lapsed into total blindness about the age of twenty-two.[2] But as such facts are by no means rare, and may be observed in a more or less marked degree in ordinary society, it is needless to adduce any further instances.

With such evidence before us, we are warranted in maintaining that the possession, by the parents, of a sound and vigorous bodily constitution, and an active and well-balanced mind, has a powerful influence in securing similar advantages to the offspring. If either parent inherits the delicacy or the mental peculiarities of an unhealthy race, the probability is very great that the offspring will be characterised by similar qualities. But in compensation for this, the same law by which the liability to gout, insanity, imbecility, scrofula, and consumption is transmitted from parents to children, enables us *to reckon with equal certainty on the transmission of health and vigour*, wherever these have characterised the parents.

Those, then, who desire bodily and mental soundness in their offspring, ought carefully to avoid marrying persons either feeble in constitution, or strongly predisposed to any very serious disease, such as insanity, imbecility, cancer, scrofula, etc.; and, above all, the greatest care should be taken against the existence of the same morbid predisposition in both father and mother. Where any peculiarity of constitution is confined to one parent, and is not very strong, it may, in some degree, be counteracted by a judicious marriage and mode of life; but where its influence is aggravated by being common to both parents, the children can scarcely escape. I am acquainted with many families

[1] *Conspectus Medic. Theor.*, cap. i. sec. 16.
[2] Baltimore Medical and Physical Repository.

in which the consequences of acting in opposition to this principle have been deplorable.

In thus insisting on the necessity of greater attention being paid to the law of hereditary predisposition, I do not mean that the actual disease which afflicted the parent will certainly reappear in the children; but that the offspring of such parents will be much more liable to its invasion from the ordinary incidents of life than those belonging to a healthier stock, and will require very careful and judicious management to protect them from it. One of the chief advantages of knowing the nature and extent of this influence is the power which we gain of counteracting it in the offspring by a system of treatment calculated to strengthen the weaker points of the constitution. Thus, if a child inherits a very scrofulous habit from both parents, and is brought up in the circumstances which induced or maintained the disease in them, there is the highest probability that it will fall a victim to some form of scrofulous disease, or will escape only after a long and severe struggle. But if timely precautions are taken—if the child is put on a proper regimen, kept much in the open air, and perhaps transferred for a few years to a drier and warmer climate—it may enjoy better health than had ever been experienced by either of its parents.

In like manner, the excitable and capricious children of parents who have been insane, or are strongly predisposed to become so, run great risk of lapsing into insanity, if brought up in circumstances tending to increase the irritability of the nervous system, and to call the feelings into strong and irregular action. But if such children are subjected from the first to treatment calculated to allay nervous irritability, to give tone to the body and composure to the mind, the danger in after-life will be greatly diminished.

It is thus the *constitutional predisposition*, and not the actual disease which is transmitted from parent to child.

MARRIAGE OF PERSONS TOO NEARLY ALLIED IN CONSANGUINITY.

Various writers in Europe and America have in late years called in question the sufficiency of the proof of the generally-

received opinion that the marriage of near relations is in itself —that is, independently of weakness or morbid taint in one or both of the parents—a source of degeneracy in the offspring. But the desirability of a general avoidance of such marriages is still generally admitted, because both parents, being related to each other, are more likely to have the same transmissible weakness or taint than they would have if not related, and such weakness or taint when transmitted from both parents is likely to appear in the offspring in an intensified form. This appears to be the outcome of recent investigations.

AGE AT WHICH PERSONS MARRY.

Early Marriage.—The ages of the parents exercise a great influence on the health and qualities of the offspring. If they have married before their own full development and maturity, the first children are generally more deficient in stamina than those born subsequently. Marriage, therefore, ought never to take place before maturity, because the system is not sufficiently consolidated for the important function of reproduction, and both parent and child suffer from anticipating the order of nature. In this country, women do not attain their full development before from twenty to twenty-three years of age, and men from twenty-five to thirty; yet it is not uncommon to encourage even delicate girls to marry at seventeen, at the manifest risk of entailing infirm health on themselves and their offspring.

Late Marriages are scarcely less unfavourable to the health of the offspring than those contracted in very early life. Beyond a certain age, neither animals nor plants are capable of producing a vigorous progeny; and hence the postponement of marriage beyond the period of maturity, now so common, especially among professional men struggling in the competition for a livelihood, is frequently injurious to their offspring. The impulse to propagate generally loses much of its force before the age of forty, and comparatively few children are born after that age to parents who have been united soon after attaining maturity.

Disparity of Age.—Another cause of infirm health in children is great disparity of years in the parents. When one is very young and the other advanced in life the constitution of the offspring is rarely sound.

STATE OF HEALTH OF THE PARENTS.

The next circumstance which permanently influences the health of the offspring is the state of the parents at the time of procreation. It is well known that, while all the children of the same family have a certain general resemblance, no two of them are exactly alike. A chief reason of this difference is the unavoidable change in the state of the parents, induced partly by the lapse of years, and partly by external circumstances acting upon their bodily and mental constitution; and from numerous facts which have been observed, it seems highly probable that the offspring may be affected even by any temporary disturbance of health in the parents about the time at which conception takes place. Anxiety of mind and unusual depression of spirits in the father have been found imprinted in ineffaceable characters on the constitution of the child. A stronger motive to regularity of living, and moderation in passion, can scarcely be presented to a right-minded parent, than the knowledge of the permanent influence of these on his offspring. Many a father has deplored, and perhaps resented, the follies of an irreclaimably wayward son, without suspecting that they were due to some forgotten irregularity of his own.

Another and a very powerful cause of delicacy in children is a *permanently deranged state of health in the parents*, showing itself in a lowered tone of all the vital functions, and a general feeling of being unwell. Of all the varieties of this cause, perhaps the most frequent and the most injurious to the offspring is *habitual indigestion*, and its consequence, *impaired nutrition*. Many parents pass years in a constant state of discomfort from what are called bilious and stomach complaints, induced by inattention to diet, exercise, cleanliness, ventilation, sufficiency of light, and the like, and thus entail a part of the penalty on their innocent offspring. Ignorant of the consequences of their conduct, they are without sufficient motive to give up their habitual indulgences, or to persevere in using the easy means of improving and preserving their health; and are surprised when assured that, while thus trifling with their own comfort, they are sporting with the welfare and fate of the dearest objects of their affections.

The influence of the constitution, both physical and

mental, of parents on the health, development, and mental character of their offspring merits grave consideration, and must, as the knowledge of physiology becomes diffused, force itself upon the attention of every intelligent person. Until the various inherited and even acquired conditions of parents which influence their children are generally understood, and practically recognised in contracting marriages and regulating the mode of living, mankind will never attain the degree of perfection of which they are susceptible, and which, we cannot doubt, they are intended by the Creator to attain. All our knowledge of the physiology of man leads to the conclusion that, as far as our physical nature is concerned, we are governed by the same laws with the inferior animals, and that with us as with them the health and constitution of the offspring depend mainly on those of the parents. Hereditary delicacy and defects may, in a great degree, be overcome by judicious management of the child from birth to maturity, although perhaps they are never entirely effaced.

CHAPTER II

INFLUENCE OF THE MOTHER'S MODE OF LIVING DURING PREGNANCY ON THE HEALTH OF THE CHILD

THE last conditions which I shall notice as affecting the health of the future infant are, *the state of mind, the bodily health, and the conduct of the mother during pregnancy*—conditions which are so directly within the scope of the present work, that I shall devote a separate chapter to their consideration.

The only circumstance that can explain or excuse the indifference shown by many mothers to the state of their health during pregnancy is their entire ignorance of the injury they are inflicting on their offspring. Many a mother who will not deny herself the temporary gratification of a single desire or appetite on her own account, would be the first and the firmest in resisting temptation, if her reason were fully convinced that every transgression of the laws of health which she commits diminishes the chances of health in her child.

MENTAL EMOTIONS.—Times of public danger and sudden alarm furnish many examples of the influence of maternal grief and anxiety on the constitution of the offspring; and if similar results have attracted less notice during quieter times and in private life, it has not been from their non-occurrence, but from their being less obvious. For, even in private life, great and sudden changes of fortune, or accidents which have kept the mind of the parent in a state of intense anxiety or excitement during pregnancy, are sometimes observed to imprint on a single member of a family a distinctive character which cannot be otherwise accounted for.

We know that a fit of passion in a nurse vitiates the

quality of the milk to such a degree as to cause colic and indigestion in the sucking infant. If in the child already born and so far independent of its parent, the relation between the two is so intimate, surely it must be still closer when the infant lies in its mother's womb, is nourished by its mother's blood, and is, to all intents and purposes, a part of her own body. Facts and reason alike prove the reality of this influence, and much practical advantage would result to both parent and child were the conditions and extent of its operation better understood.

While the preponderance of evidence is decidedly against the theory that *local* deformities and marks in the infant are generally the results of an accidental shock or strong impression given to the feelings of the mother, there is more than enough to establish the existence of a direct relation between the health and feelings of the mother and the constitution of the child. Reason, indeed, independently of experience, would lead us to expect this; for whatever affects the general health and action of the system must affect *all* its component parts—and the unborn child being virtually a part of the mother, it is natural to suppose that it should be subjected to nearly the same influences as the rest of her organism. If the mother's digestion is impaired, and the quality of her blood deteriorated, by anxiety of mind or continued neglect of her health, how can the infant escape being injured, since it must be nourished by the same blood which is unfit for her own healthy nutrition?

GENERAL CONSTITUTION.—The *habitual state* of mind of the mother during pregnancy, whether it be that of excitement or depression, or of tranquil or irritable temper, exerts a positive and constant influence on the offspring. In this way the mental disposition of the child is often a legible transcript of the mother's condition and feelings during pregnancy; and here, as already remarked, is one of the sources of variety of character in children of the same family. The later-born often differ greatly, both in mental and bodily constitution, from the earlier progeny; but then, how great also the difference between the feelings, passions, and physical health of the parent of twenty or twenty-five, and those of the same parent at forty years of age.

The extent of the modifying power of the mother is seen

again in the opinion that the majority of great men have descended from mothers remarkable for their mental endowments and activity. The influence of the father is probably as direct as the mother's, but, from her peculiar province, the mother's continues much longer. Hence, it is likely, her usually greater share in the production of a gifted offspring.

When we contrast the robust constitution of a healthy peasant's child in the country with the feeble frame of the child of a delicate mother living in the midst of the enervating dissipations of a great city, can we believe for a moment that *chance* alone has given health to the one and delicacy to the other, and that the mode of life of the parent has had no share in the result? Does not that mother, then, incur a heavy responsibility who thus, whether from wilful ignorance or from the selfish pursuit of pleasure, perils the health and permanent happiness of her offspring? From the moment of conception it is the paramount duty of the mother to endeavour to maintain, by every means in her power, the highest state of mental and bodily health of which her constitution is susceptible; and this is the more binding upon her, since its performance involves no sacrifice worthy of the name—none which will not be amply compensated by its favourable effects on her own health, as well as on that of her infant.

By many women pregnancy is regarded with alarm, as a period full of danger. But this period is not naturally dangerous, and is rendered so only, or chiefly, by neglect or mismanagement on the part of the mother herself. If, regardless of the future, she neglects, as many do, the ordinary laws of health, or gives way to indolent inactivity, to the excitement of passion, or to dissipation and the indulgence of appetite, it is not surprising that she should suffer more seriously than if she were not pregnant. But as mothers often err from ignorance alone, it is of the greatest importance that they should be made acquainted with the relation between their conduct during pregnancy and the health of their offspring.

It is true that instances may be adduced, in which even a dying mother has given birth to a well-grown and robust-looking child; but these rare cases, even if admitted in their broadest aspect, are far from neutralising the much more

frequent opposite instances. There are women in whom severe disease of a local kind is suspended in its course during pregnancy, and the whole energies of the body are concentrated, as it were, on the womb, to complete the evolution of the new being; and the moment this is effected, the malady regains its force, and hurries to a fatal end. The infant may then be, and sometimes is, comparatively healthy, or grows up so when carefully treated and put to a healthy nurse.

The children of scrofulous parents are often regarded as exceptions to the principle of hereditary influence; and it is quite true that, as children, they sometimes present an appearance of health which is apt to deceive a superficial or inexperienced observer. They may be plump, well-grown, and rosy-complexioned. But beneath all this fair and promising surface lurk too often a softness and delicacy of structure, and an excitability of the system, which indicate the absence of real stamina. Such children generally shoot up, tall, thin, and impressionable; or they become full, heavy, and languid, falling victims sooner or later to the very parental infirmity which, in their earlier childhood, seemed least likely to attack them.

The condition of the mother being thus influential on the well-being of her offspring, the importance of contributing in every possible way to her health, comfort, and cheerfulness, especially during pregnancy, is very obvious. This, however, must be done by rational observance of the laws which regulate the exercise of the various functions, and not by the foolish indulgence of her whims. Gloomy, painful, and harassing impressions ought to be guarded against, and good-natured equanimity and cheerfulness cultivated by all around her. Let it be her constant aim to engage in healthful and invigorating occupation, which shall afford a wholesome stimulus to her intellectual and moral faculties, and prevent her attention from dwelling too much upon herself. In her leisure hours let her seek some rational and invigorating exercise of mind and body, and be on her guard against giving way to caprice of temper, to indolence, to endless novel-reading, or to any form of social dissipation. In very few instances does it become advisable to cease from engaging in the ordinary duties of the family, or to change such habits of life as have been found by experience

to be healthful. Among the circumstances which require attention during pregancy, even more than at any other time, may be mentioned breathing a free, pure air; sleeping in a well-aired room, on a bed not so soft as to induce relaxation, and either without curtains, or with curtains never closely drawn; regular daily exercise in the open air; and great attention to personal eleanliness, to dress, diet, and all the ordinary conditions of health.

DIET.—A notion is very prevalent, that an unusual supply of nourishing food is required during pregnancy, on account of the rapid development of the child. In some instances in which the general health, digestive powers, and appetite improve during gestation, an increased allowance of food is necessary and advantageous; but in the great majority of cases, where no such improvement takes place, and the appetite is already more vigorous than the powers of digestion, nothing but mischief can follow from an increased diet. When, therefore, during pregnancy, the health is good and the appetite natural, there is no need whatever of increasing the quantity or altering the quality of the food which is found by experience to agree with the constitution, nor can anything but harm ensue from attempting to "support the strength" by too nutritious a diet.

When, from mistaken views, a change is made from a plain and nourishing diet to full and generous living, and especially if the usual exercise is diminished, a state of fulness, no less dangerous to the mother than injurious to the embryo, is apt to be induced, or is prevented only by the digestive powers giving way—which leads to much suffering from nausea, heartburn, flatulence, inordinate craving, weakening perspiration, and other unpleasant symptoms. Where digestion continues unimpaired, and the superfluity of nourishment is taken into the system, a fulness with sense of oppression ensues, which infallibly leads to mischief when not timeously relieved either by nature or by art. Occasionally, bleeding from the nose or lungs, or from piles, removes the impending danger. In short, the fulness thus induced must have vent somewhere. To the child no less than to the parent its consequences are injurious, not only through the risk of premature birth, but by affecting the future soundness of the child's constitution;

and hence arises a solemn moral duty of the mother not to place herself voluntarily in circumstances which, while defeating her fondest hopes of happiness, and leaving her a prey to broken health and enduring regret, may permanently impair the constitution of her offspring.

But in avoiding one error, we must be careful not to run into the opposite extreme, and sanction an *insufficient* diet. Many women in the poorer classes suffer grievously in this way, and, from absolute inability to procure nourishing food in due quantity, give birth to feeble and unhealthy children, whose life is a scene of suffering, but who, fortunately, seldom long survive. Deficient nourishment of the mother is in truth a frequent cause of the physical inferiority of the children of the working classes, and the greater mortality observed amongst them; and, as it almost necessarily leads to moral inferiority likewise, it eminently calls for the serious attention of our statesmen. As reasonably may we expect fine fruit and rich harvests from an impoverished soil as well-constituted children from parents exhausted by bodily exertion and insufficiently nourished.

The effects of insufficient diet in impeding the development of the infant in the mother's womb are so well ascertained that no doubt of the fact can exist in the mind of anyone who has examined the subject for himself; and, were this a proper place, I might point out the risk which is incurred, by enforcing too rigid economy in this respect in workhouses, of producing deterioration of the children born there, and consequently a future increase of pauperism.

Although it is the children of the poor that suffer most from inadequate nourishment of the parent during pregnancy, those of the richer classes suffer from it also, though in a different way. *The system is duly nourished only when food proper in itself is properly digested;* if the digestion be imperfect, no food, however nutritious, will afford a healthy sustenance. From inattention to this fact, many mothers in the higher ranks give birth to feeble and imperfectly-developed children. Indulging in every luxury, they eat unseasonably, and often largely, till the powers of the stomach are exhausted, and digestion becomes so much impaired that the food ceases to nourish. As regards the infant, the result is the same whether the want of nourishment arises from deficient food or imperfect digestion; and

hence the duty so strongly incumbent on the mother to act like a rational being, for her infant's sake if not for her own. Morally considered, it is as culpable on her part to starve the infant before birth by voluntarily impairing her power of nourishing it as by refusing it food after it is born.

In all instances, the great aim ought to be, *to adapt the kind and quantity of nourishment to the wants of the individual and the state of the digestive organs.* Following this rule, we shall find that, while in general no increase in the quantity of food is required during pregnancy, there are nevertheless many women who enjoy a higher degree of health in the married state, and especially during pregnancy, than they did before, and in whom the appetite is increased only because digestion and the other organic functions are carried on with greater vigour. In such cases an improved diet is not only safe, but even necessary; care being taken, however, not to push it so far as to impair the amended tone of the system. By a little attention, the proper limit can in general be easily determined. So long as healthy activity of mind and body, aptitude for exercise, and regularity of the animal functions continue unimpaired, there is nothing to fear; but if oppression, languor, or other indications of constitutional disorder begin to show themselves, no time should be lost in effecting the necessary restrictions in diet.

At no period of life is it so important to observe moderation and *simplicity* in this respect, and to avoid the use of heating food and stimulants, as during pregnancy. Not only is the system then unusually susceptible of impressions, and apt to be disordered by the slightest causes, but in women of a nervous constitution the stomach is often the seat of a peculiar irritability, accompanied by a craving and capricious appetite, which sometimes leads to excess in the use of both wine and food. It requires much good sense and self-denial on the part of the mother to resist these morbid cravings, especially during the latter stages of pregnancy, when the risk from this cause is greatly increased.

In regard to longings for extraordinary kinds of food, much caution ought to be exercised. Such longings rarely occur in a healthy woman of a well-constituted mind. Indeed, they are almost peculiar to delicate, nervously-irritable women, who have been accustomed to much in-

dulgence, and have no wholesome *occupation* to fill up their time. Hence, the right way to treat them is not to yield to every new desire, but to provide proper objects of interest to the intellect and feelings, and give the stomach the plain and mild food which alone it is able, in its weakened state, to digest.

During pregnancy, the great aim, for the sake of both parent and child, ought to be to sustain the general health in the highest state of efficiency. In order to attain this, the mother ought to pursue her usual vocations and mode of life, if these are in harmony with the laws of health. Regular daily exercise, cheerful occupation and society, great cleanliness, moderate diet, pure air, early hours, clothing suitable to the season, and healthy activity of the skin, are all more essential than ever, because now the permanent welfare of another being is at stake, in addition to that of the mother.

Conducted with strict attention to these rules, the first pregnancy may become a means, not only of improving the mother's present health and securing that of her child, but of giving her a higher degree of permanent health than she enjoyed before her pregnancy.

DRESS.—For many years past, common sense and science have combined to wage war against custom and fashion on the subject of female dress, particularly tight-lacing and the use of unyielding corsets, but hitherto with only partial success. Of late, however, a perception has begun to prevail, that the object for which the restraint is undergone may be more certainly attained by following the dictates of nature and reason than by mechanical compression. Already, a better acquaintance with the laws of the animal economy, added to the lamentable lessons of experience, has convinced many women that the surest way to deform the figure and prevent gracefulness of carriage is to impede the free expansion of the chest by the use of stiff and tight stays, and that the most effectual way to improve both is to follow the opposite course. It was not by the use of tight bands and stays that the classic forms of Greece and Rome were fashioned, and if we wish to see these reproduced we must secure freedom of action of the whole muscular system. If the body be allowed fair play, the spine will grow

straight and firm, but at the same time graceful and pliant, and the rest of the figure will develop itself with freedom and elegance; while the additional advantage will be gained, of the highest degree of health and vigour compatible with the original constitution. Hence, it ought to be the first duty of the young wife who has reason to believe herself pregnant, to take care so to arrange her dress as to avoid the slightest compression of the chest or abdomen, and thus secure the utmost freedom of respiration. I need only add, that the evils of tight-lacing do not end with the birth of the child; the compression, by preventing the full development of the breasts and nipples, renders them unfit to furnish that nourishment on which the life of the infant may entirely depend. And yet it is only when absolutely compelled to give way as pregnancy advances, that many women loosen their corsets sufficiently to admit of common breathing-space and of the development of the breasts and nipples.

While I strongly advocate the bringing-up of young girls without the use of such ill-judged support, I by no means recommend that delicate mothers, to whom long custom has rendered corsets necessary, should at once lay them aside, although I have known this done with manifest advantage. They ought, however, to use only thin whalebone blades, and be very careful to wear them sufficiently loose to admit of the free enlargement and ascent of the womb. If this precaution be neglected, both mother and infant may be seriously injured. To afford the necessary support during the latter months of pregnancy, a broad elastic bandage worn round the body will often be of service; but every approach to undue pressure should be scrupulously avoided.

EXERCISE.—Nothing contributes more than exercise in the open air to a sound state of health during gestation, and to a safe and easy recovery after delivery. With ordinary care, walking may be continued almost to the last hour, with excellent effect upon all the functions. In this respect the Queen has set an example to her subjects, and her easy labours and rapid recoveries have been in a great measure owing to her systematic observance of daily active exercise in the open air during the whole period of gestation. Many evidences, indeed, prove that the degree of danger attend-

ing pregnancy depends very much on the mother herself. Child-bearing is a natural and not a morbid process; and in the facility with which healthy, regular-living women pass through it, we have abundant evidence that the Creator did not design it to be necessarily a time of great suffering and danger. Where the mode of life and the habitual occupations of the mother are rational, the more closely she can adhere to them during pregnancy the better will it be for herself, and consequently also for her infant.

BATHING.—Cleanliness and fresh air are important aids to health at all times, but doubly so during gestation. Hence the advantage of tepid bathing, especially to women whose nervous system is unusually excitable. It promotes the healthy action of the skin, abates nervous excitement, tends to prevent internal congestion, and is in every way conducive to health. A bath, at the temperature of 94° to 96° Fahrenheit, once a week during pregnancy, will in most cases be found very beneficial. As a rule, a quarter of an hour is sufficiently long to remain in the bath; and it should never be taken soon after a meal.

MANAGEMENT OF THE BREASTS.—All undue pressure, by stays or otherwise, should be carefully avoided, especially over the nipples, as the skin covering them is extremely delicate and sensitive. The breasts should also be carefully examined by a medical man a month or longer before the termination of a first pregnancy, as it occasionally happens that one or both nipples are compressed and flattened, and artificial means may be necessary to develop them sufficiently to enable the child to suck. Neglect of this precaution may prevent an otherwise healthy mother from suckling her child, and also give rise to inflammation, often ending in painful abscesses of the breast.

CHAPTER III

GREAT MORTALITY IN INFANCY PRODUCED BY REMOVABLE CAUSES AND INCREASED BY PARENTAL IGNORANCE

It is believed that more than one-third of all the children ushered into the world die within the first five years after birth. If this be correct, the natural conclusion is, that such a frightful result can arise only from great and widespread errors in the management of the young. Did this occur in wild and barbarous regions only, it might seem a natural consequence of the hardships by which infancy is there surrounded. But the startling circumstance is, that it happens in the midst of comfort and civilisation, precisely where knowledge and the means of protection are supposed to abound. As the first step towards preventing or curing an evil is to obtain a clear perception of its existence and nature, I think it advisable to adduce such evidence as may satisfy even the most sceptical, that the rate of infant mortality is both excessively high and capable of being greatly reduced by judicious management.

About the middle of last century the London workhouses presented the astounding result of *twenty-three deaths in every twenty-four* infants under the age of one year! For a long time this frightful devastation was allowed to go on, as a thing beyond the reach of human remedy. But when at last, in consequence of a Parliamentary inquiry, an improved system of management was introduced, the proportion of deaths speedily fell from 2600 to 450 a year. Here, then, was an annual loss in those institutions alone of 2150 lives, attributable not to any unalterable decree of Providence, but to the ignorance, indifference, or cruelty of man!

Even in the present century, with all our boasted improvements, the mortality in infancy has continued to be enormous. To prove this, I need only refer to the statistical returns

contained in the Annual Reports of Births, Deaths, and Marriages in England, presented to Parliament by the Registrar-General. In the very first of these reports it is recorded that, of the total deaths which took place in England and Wales in 1838, nearly *one-third* occurred under two years of age! This, be it remarked, was not a year selected for any unusual fatality, but was merely the first in which registration was established; and its general results are confirmed by the experience of subsequent years. Thus, the English returns for 1841 show a mortality, under two years of age, of 101,478 out of a total of 343,847 deaths, being rather more than 29 per cent. In Belgium, again, where the population enjoys a high degree of domestic comfort and general intelligence, the earlier returns showed that *one* in every *ten* infants born alive died *within the first month*; while *at the end of five years*, only 5733 out of every 10,000, or little more than one-half, survived.[1] In Manchester and Salford matters were still worse; for it appears from the Registrar-General's Second Report, that out of 9276 deaths which occurred in that city in the year ending June 30th, 1839, 2384, or about one-fourth, were of infants under one year; 3680, or more than one-third, under two years; and 5145, or considerably more than a half, under five years of age![2]

From such facts as these, corroborated as they are by more recent statistics, it is plain that many causes of destruction are still active, even in those parts of Europe where science has made the greatest advances.

Considering, then, that so great a mortality prevails in infancy even under what are apparently the most favourable circumstances, we are met by the question: Is this mortality a necessary result of the arrangements of Divine Providence, which we can do nothing to modify; or does it, on the contrary, proceed chiefly from secondary causes, left to a considerable extent under our control, and which we may at least partially obviate, by making ourselves acquainted with the nature of the infantile constitution, and adapting our conduct to the laws or conditions under which its different functions are intended to act?

[1] *Quetelet sur l'Homme et le Développement de ses Facultés*, vol. i. pp. 161–167; Paris, 1835.

[2] See Appendix.

Now, if we ponder the facts above stated, there will, I think, be little difficulty in determining that this appalling waste of infant life is *not* an intended result of the Divine arrangements, but is occasioned *chiefly* by human ignorance and mismanagement, and may be expected to diminish in proportion as we shall discover and conform to the laws which the Creator has established for our guidance and preservation. Ample confirmation of this view will be found if we contrast the rate of mortality in infancy among the poor with that among the rich; the mortality in densely-peopled manufacturing towns with what is found in the open country; the proportion of deaths which formerly occurred with that which now occurs in public hospitals; and, above all, the enormous waste of life in foundling hospitals—where the natural food of the child and the watchful solicitude of the mother are withdrawn—with the comparatively small mortality in private families, where these advantages are enjoyed. This comparison I shall now proceed shortly to make.

It has already appeared how greatly the condition of infants is affected by *the degree of health and comfort enjoyed by the mother during pregnancy.* Where this is the most favourable, there will the offspring, in ordinary circumstances, be the most healthy, and most capable of resisting hurtful influences. On the contrary, where bad health and misery predominate during pregnancy, the greatest risk is run by the child, and the proportion even of children *born dead* is much higher than usual. As things stand at present, many of the comforts, and some of even the necessaries of life, are beyond the reach of the poorer classes—a circumstance necessarily diminishing the chances of life to their infants. In large towns the want of fresh air in overcrowded dwellings adds fearfully to the rate of infant mortality. But to these sources of premature death must be added the baneful practice, too prevalent in manufacturing towns and districts, of administering laudanum or other soothing drugs to infants, in order to keep them quiet during their mothers' absence at the factory.

An instructive example of the extent to which infant mortality may be diminished by rational treatment will be found in an abstract given by the late Dr. Joseph Clarke from the Register of the Lying-in Hospital of Dublin, in

which it is stated that, at the conclusion of 1782, out of 17,650 infants born alive, 2944, or nearly every *sixth* child, died within the first fortnight. This extraordinary fatality seemed to Dr. Clarke to be caused chiefly by the great impurity of the air in the wards; and by adopting means calculated to ensure better ventilation the number of deaths was speedily reduced to only 419 out of 8033, or about one in 19½, instead of one in 6! During the seven years when Dr. Collins was master of the same institution, the cases of *trismus* were reduced, by still further improvements in ventilation and increased attention to cleanliness, to so low an average as three or four yearly; whereas, in 1782, they caused nineteen-twentieths of the deaths.[1] In 1859, Dr. M'Clintock, at that time master of the hospital, stated that a death from *trismus* then occurred only once or twice a year, and that the sanitary condition of the establishment was satisfactory.[2]

Having thus shown how greatly infant mortality may be reduced by good management, I might next refer to the experience of foundling hospitals for conclusive evidence of the destructive influence of bad treatment where the unhappy outcasts are deprived of a mother's care, and suffer many of the inconveniences by which health is most easily affected and life destroyed. But it will be sufficient to adduce the case of *orphans*, who, next to foundlings, are the most unfortunately situated for the preservation and enjoyment of life, and among whom, consequently, other conditions being equal, the mortality is much greater than among children who are tended with a mother's care and affection. Yet it is not less instructive than cheering to observe how much it is possible to do, by kind and rational treatment, even for that unfortunate class. Of this we have a remarkable example in the Orphan Asylum of Albany in the State of New York, which was opened in the end of 1829 with about 70 children, but where the average up to August 1836 amounted to 80. During the first three years, while the management was imperfect, *the deaths amounted to between thirty and forty*, or nearly one in every month. At the end of this time an improved system of treatment was adopted, and the results were in the highest degree satisfactory. The services

[1] *Collins's Practical Treatise on Midwifery*, p. 513; London, 1836.
[2] Letter to Sir James Clark, Bart., July 18, 1859.

of the physician were no longer needed; and, *for more than two years, no case of sickness or death took place.*

It may be argued that the examples which I have given are extreme cases, and that no such mismanagement or fatality occurs in strictly private life. Most of them, certainly, *are* extreme cases; but on that very account they have been selected, as showing all the more incontestably how extensive the sphere of our influence is, and how important it is to the young that our management of them should be in strict accordance with the nature of the infant constitution and with the laws of health. But though it be in hospitals and other institutions for children that the most fearful results of bad treatment have occurred, we must not infer that the records of family practice are unstained with similar errors, and that among the wealthier classes nothing more can be done for the preservation of infant health and life. On the contrary, we have too good reason to believe that, among the best-educated classes, many lives are cut short by mismanagement in infancy, which might be saved if the parents possessed in time a portion of that knowledge and practical sense which dire experience sometimes impresses upon them when too late.

The grand principle, therefore, which both parents and medical men ought to have ever before their eyes, is, that human life was not intended to be extinguished at its very dawn, and that its early extinction, whenever this occurs, is the result of previously-existing causes, some of which might have been discovered and removed, while others might have been entirely or partially counteracted. This being the case, the first duty of parents obviously is to make themselves acquainted with the general nature and proper treatment of the infant constitution, that they may not unnecessarily risk the welfare of their children, and their own peace of mind, upon the mere chance of finding well-qualified substitutes in a lower and still more imperfectly educated class than their own. *To the right-minded mother, the management and training of her children ought to appear in the same light as the exercise of a profession. It is her natural and special vocation; and she is as much bound to fit herself for the discharge of its duties, as the father is to prepare himself for the exercise of the profession by which he is to provide for their support.*

But it may be asked, Where is the necessary information to be obtained, seeing that none such is taught to girls at school or at home, and that few treatises fit for their perusal are to be met with? This difficulty is not without force. The want, however, is becoming more widely felt, and several works, more or less suited to the purpose, have made their appearance. But as none of them embraces all that I conceive to be required, I have ventured on the present attempt to supply the necessary information in a plain and intelligible way.

The following important remarks, the result of Mr. Simon's extensive experience, will form a fit conclusion to the present chapter:—

"The *death-rates* of young children are among the most important studies in sanitary science, not only on their own account, but as affording a very sensitive test of the sanitary circumstances of the district. Where infants are most apt to die, the survivors are most apt to be sickly; and where the children struggle through a scrofulous childhood to realise an abortive puberty, they beget a still sicklier brood than themselves—less capable of labour, and less susceptible of education—feeble in body and mind. A high local mortality of children almost necessarily denotes a high local prevalence of those causes which determine a degeneration of the race." [1]

[1] Introductory Report on "Papers relating to the Sanitary State of the People of England, by E. Headlam Greenhow, M.D." By John Simon, Esq., the Medical Officer of the Privy Council.

CHAPTER IV

INFANT HEALTH NOT ACCIDENTAL BUT DEPENDENT ON FIXED LAWS

From the evidence just adduced the conclusion is irresistible, that the health and life of the infant depend essentially on the kind of management to which it is subjected, and the circumstances by which it is surrounded. Where both these are favourable, the child will enjoy the highest degree of health of which its natural constitution is susceptible; but where they are unfavourable, its life and health will be correspondingly precarious.

The principle implied in the foregoing propositions alone explains the progress which has been made in diminishing infant mortality, and encourages us to further exertion, in the belief that disease and death will be averted from infancy in proportion as we shall succeed in bringing our treatment into harmony with the laws of the human constitution, which are *laws of the Creator.*

Let it never be forgotten that disease and untimely death are the results, not of chance, or of any abstract necessity, but simply of neglecting the *conditions* on which God has decreed the healthy action of the various organs of the body to depend, and which have therefore been appropriately named the *organic laws.* When these conditions are fulfilled, health is preserved; when they are infringed, the action of some organ is impeded or disordered—in other words, *disease* begins. Thus, when a fit of indigestion is occasioned by excessive eating or drinking, the disorder proceeds from infringement of that law which requires, as a pre-requisite of healthy digestion, that the food and drink be adapted in quantity and quality to the state of the constitution, mode of life, and powers of the stomach. In like manner, when inflammation of the eye is excited by long

exposure to a very bright light, the disturbance arises from disregarding the law that light must bear a certain relation to the natural constitution of the eye. If we exercise the eye with a light either too intense or too feeble, or look continuously through glasses calculated either to concentrate or disperse the rays of light in a higher degree than that to which the eye is adapted, disorder of its structure is sure to follow; and so long as the deranging cause is allowed to operate, we shall use in vain the best-devised treatment for the cure of the disorder. But the moment we adapt the light and the exercise to the altered state of the organ, so as to give due scope to the preservative powers of nature, the very same treatment may speedily succeed, because now the laws of the function are conformed to. Equally vain is the attempt to cure indigestion by drugs, without fulfilling the requisite conditions of health of the stomach by adapting the diet and mode of life to its deranged state.

In every instance, then, we must inquire what the *cause* of bad health is, and what organs are chiefly implicated. In infancy, for example, convulsions are frequent and dangerous; and if, without attempting to discover their origin, we merely prescribe for the convulsions themselves, we shall not only often fail to arrest them, but probably leave their causes in full operation. Thus, one cause of convulsions is breathing impure air, another is the irritation of teething, and a third is improper diet; so long, therefore, as fresh air is withheld, or the irritation of the gums unallayed, or the diet ill adapted to the child, our attempts to remove the disorder must terminate in disappointment.

In the same way, all the causes of disease are infringements of the conditions of health of some organ or organs of the body; and were it in our power to discover the whole of these conditions in reference to *all* the organs, as well as to fulfil them perfectly, we might prevent disease altogether, and prolong our lives till the natural period of decay. The grand aim, therefore, in attempting to improve the treatment of infancy, ought to be, *the discovery and fulfilment of the conditions on which the healthy action of the principal organs depends.*

To this view of the origin of disease it has been objected, that diseases are specially sent by Providence for the spiritual benefit of the sufferer and not with reference to any

physical errors or omissions with which he may be chargeable. But this objection arises from a very narrow conception of the workings of God's providence, and is contradicted by daily and hourly experience, as well as by the habitual conduct of mankind. No man capable of observing and reasoning can fail to know that health *is* affected by his own conduct, and *is* under the influence of fixed laws; nor is there a living being that does not act habitually and instinctively on the faith of this being the case.

It is true that disease, and recovery from it, both proceed from the Divine will, and that, like every other dispensation, they ought to be made available to moral and religious improvement, as well as to a better observance of the laws of health. But it is not less true that the Divine will acts through secondary causes and according to an established plan, to which we, as intelligent beings, are plainly required to conform. To know this plan is therefore of high importance to all, but specially to those whom God himself has entrusted with the guardianship of a whole family's health and happiness.

In inculcating these views, I am so far from disregarding the influence of Divine power, that, on the contrary, my chief object is to enforce attention to its ever-present existence, and, by explaining the mode in which it operates, to point out the surest way of obtaining its aid in attempts to improve our condition. God acts according to plan, established by Himself; and to disregard the rules of conduct which the study of that plan reveals to be His will when it shows that their observance is indispensable to our happiness, is as truly to rebel against His authority as if we were to act at variance with His written commandments.

To understand the operation of the external causes of disease, we must have some acquaintance with the nature and conditions of the bodily functions. Without this knowledge, we shall often fail to detect aberrations from their healthy action, in time to prevent the mischief which is sure to ensue, and which, with it, might easily be obviated. Nothing is more common than for parents to declare that no cause of any kind has been in operation, where the physician is able to trace one of a very influential kind. Nay, it occasionally happens that, from ignorance of the laws of the animal economy, the parents cannot comprehend the action

of a cause when it is pointed out to them, and deliberately leave it unremoved, in the belief that it is nowise injurious.

If we try to discover why the children of one family are almost always healthy, and those of another almost always ailing, we shall generally succeed in tracing the result either to the bodily constitution derived from the parents, or to a difference in the management or external circumstances of the families. Occasionally, indeed, we are entirely at a loss to assign any sufficient cause; but even in such cases, reason and analogy entitle us to assume that causes do exist, although we have not succeeded in discovering them. Sometimes they are hidden from view only because the medical attendant has not had sufficient opportunity to find them out, and the parents are too little acquainted with the animal economy to be able to tell when and in what respects their management is imperfect. In no circumstances ought the medical practitioner to content himself with getting a few brief answers to questions, nor should he receive the same statement *as always bearing precisely the same meaning in the mouths of different persons.* Much erroneous practice arises from overlooking the latter source of error. Let the physician interpret with caution the statements he receives, and verify them as much as possible by personal observation. Let him also make sure that everything which he recommends is *understood in the sense in which he means it.*

CHAPTER V

ON THE CONSTITUTION OF THE INFANT AT BIRTH

We have now to consider those causes which act *directly* on the health of the infant after it has entered on an independent existence.

Before birth, the child may be considered as virtually a portion of the mother's organism, for its life and growth are wholly dependent on her. But when once it is ushered into the world, what a vast revolution takes place! In an instant it is transferred from unconscious repose, solitude, and darkness, to life, and light, and action. From being surrounded by a bland fluid of unvarying warmth, it passes to the rude contact of an ever-changing air of a lower temperature, and to a rougher touch from even the softest clothing, than it ever before sustained. Previously nourished by the mother's blood, it must now take in and digest its own food, and throw out its own waste. The blood, till now purified and restored through means of the mother's system, must henceforth be oxygenated in the lungs of the child itself. The animal heat, formerly derived from the mother, must now be supplied by the action of its own organs. Such are the changes which render the period of early infancy so full of peril, when their nature is misunderstood, and the management is not in harmony with the constitution of the infant.

NERVOUS ACTION and MUSCULAR MOTION are unquestionably the functions first excited at birth. From the moment when the infant ceases to be a part of its mother's system, the continuance of its life depends on *respiration* or breathing. If that were delayed or suspended for a very short time, it would perish suffocated. But before it can begin to breathe, and to circulate its own blood, *the stimulus must be*

felt, which renders breathing an imperative act. Accordingly, no sooner is the infant born than it is roused into action by the sudden and disagreeable contact of the colder air upon the sensitive nerves of the skin, and immediately begins to breathe. The excited sensibility of the nervous system is thus the primary source of the involuntary impulse which causes the lungs to play, though doubtless the peculiar stimulus arising from the presence of venous blood in the brain and lungs also contributes. In order to give the infant this keen sensibility, and excite immediate reaction through the reflex system of nerves, the nervous filaments are well-developed from the first, and are copiously distributed to the tender skin. The manner in which they are instrumental in making respiration begin, will be easily understood if we consider the suddenness of the infant's transition from a temperature of 98° or 100° to one of 60° or 65°, and recollect the panting and sighing, from irregular action of the respiratory muscles, which plunging into a cold bath produces in an adult, especially if delicate and excitable. So disagreeably vivid, indeed, is the impression made on the child by the cold air, that in most cases it immediately begins to *cry*; which act, as it consists in hurried and irregular breathing, has the advantage of more quickly and effectually expanding the lungs, and giving a wholesome stimulus to the circulation through their vessels. Hence, crying is always considered a satisfactory sign of a child's vigour at birth.

Another important purpose fulfilled by the acute sensibility of the skin in early infancy, is protection from external injury. The organism is then so feeble and delicate, that a very trivial cause is sufficient to disturb its health. A slight excess of cold or of heat, a little hardness or roughness of its clothing, any trifling neglect of cleanliness, or constraint of position, may even induce general or local disease. Hence, if such sources of irritation were not immediately felt by the infant, and felt so acutely as to force it to sound the alarm and call for their removal, serious disease might be induced, or the child might perish, without any previous indication that mischief was going on.

Nervous sensibility and muscular motion being thus begun, the functions next called into action for the preservation of life are those performed by the lungs and heart

—namely, *respiration* and *circulation.* Thus three important changes follow immediately on the birth of the infant: the excitement of the nervous system to action; the expansion of the lungs, and establishment of respiration; and an alteration in the course of the venous blood, which is now made to pass through the lungs, instead of going, as before, directly from the right to the left side of the heart. But there is yet another condition of independent life, formerly provided for by the parent, which must come into play at birth—the supply of *animal heat.*

A certain degree of heat is essential to the well-being of all warm-blooded animals. If it is either too high or too low, all the functions suffer, and, in extreme cases, death soon follows. To obviate these sources of danger, Nature has so constituted the human organism, that, within certain limits, it preserves an equality of temperature, whether the heat of the surrounding air be above or below its natural standard. This temperature in the healthy adult is about 98°; hence it is plain that, without some provision for producing heat, the body would quickly be cooled down, even in summer, to a fatal extent. What, then, is the provision actually made?

FOOD is the primary source of animal heat, and the development and diffusion of this heat are effected by means of *digestion, respiration,* and *circulation.* When the supply of food is sufficient, the rapidity with which animal heat is generated is (other circumstances being alike) in proportion to the size of the lungs, and the freedom with which they play in a pure and temperate air. Now, we have only to look at the small chest and feebly-developed lungs of the infant, and the comparative inactivity to which it is doomed in the early months of existence, to feel assured that in it this source of heat must be scanty indeed.

Nor is it more favourably situated in regard to the other source—a full and nourishing diet; for the mother's milk is at first watery and unstimulating, and conduces but little to the chemical changes by which heat is evolved.

If, then, ample nutrition, free respiration, and active nervous influence, are the chief sources of animal heat, we cannot expect its rapid evolution in infancy—the very period at which these functions are most imperfect. Notwithstanding this, however, it was once, or rather still is,

a matter of popular belief, that infants have a great power of resisting cold. But Dr. Edwards has demonstrated that, as might be expected *à priori*, the power of generating heat is at its minimum in all animals immediately after birth, and that it rises progressively as their development, strength, and internal activity increase.

The extreme care with which the lower animals protect their young from cold might have led sooner to the truth. Dr. Edwards observed a very great and rapid diminution of temperature in the new-born offspring of most carnivorous animals when removed from the mother, but a loss of only 2° or 3° of heat when lying close to her body. Young sparrows are found to have a temperature of 95° or 96° in the nest, a week after being hatched; but when removed from it, their temperature falls in a single hour to 66½°, that of the atmosphere at the time being as high as 62°. Man is no exception to the rule; and as the power of generating heat is comparatively feeble in infancy, while a regular high temperature of the body is necessary for existence, it follows that whatever withdraws heat faster than it is generated must be injurious, in proportion to the weakness of the constitution, and to the extent and rapidity of the action of the cause.

It is thus necessary to bear in mind that, so far from possessing a power of successfully resisting cold, infants, in common with the young of all warm-blooded animals, cannot even sustain their own temperature, and soon perish unless duly protected; and that the degree of animal heat which is indispensable to the continuance of life cannot be kept up until the three great processes of *respiration*, *circulation*, and *digestion*, are fully established. To the last of these the attention of the reader must now be directed.

After a short period of repose, sufficient to allow it to recover from the turmoil of birth, the infant awakes to demand, in obedience to a powerful instinct, the gratification of *appetite for food*. For the first time it receives food into its own stomach, and commences the progress of digestion for its own sustenance. This function is necessary, not because life cannot exist without it, as in the case of respiration and circulation, but because growth and waste are the concomitants of life, and materials must be supplied for building up, and for the replacement of what is lost.

Thus, the taking of food is not an immediate and pressing want like that of breathing, but may be delayed for several hours with safety and propriety.

The new-born infant being thus dependent on supplies of nourishment from without, which its own system must *digest* and *assimilate*, its organs of digestion are sufficiently developed to assume at once their now necessary office. From the simplicity of its natural food, and the small quantity taken in at a time, digestion goes on very actively, and the nutritive chyle is soon ready to be taken up by the absorbent vessels, the use of which is to imbibe it from the inner surface of the intestines as fast as it is formed, and convey it to the right side of the heart to be mixed with the venous blood, and afterwards, by exposure to the air in the air-cells of the lungs, converted along with it into arterial or nutritive blood. But the lungs and chest being still small, and respiration feeble, if the child is encouraged to suck too much or too frequently, so that chyle is brought to the lungs in larger quantity than can be easily converted into good blood, disturbance of health from the circulation of *imperfect* blood necessarily follows. Or, if stronger food, such as chicken-tea or beef-tea, be given too soon with the view of strengthening a weak child, the chyle formed may be imperfectly sanguified in the lungs, and disease may ensue.

Nutrition and growth being in this way provided for, it is clear that, without some regular outlet for the effete matter which has already served its purpose in the system, and some means of removing the indigestible part of the food, repletion and oppression would follow, and soon lead to disease and death. This danger is, however, effectually obviated by the *organs of excretion*, through which the effete particles, and the refuse of the food, are removed from the system.

The principal excretory organs are the *Bowels*, the *Kidneys*, the *Skin*, and the *Lungs*; and, as we proceed, we shall find that a proper balance between the organs of *nutrition* and those of *excretion*—between the supply and the waste—is an essential condition of health in infancy, as indeed it is at every stage of life.

The function of excretion being so necessary an accompaniment or consequence of nutrition, we find its organs ready to start into activity soon after birth. The *Bowels* and the *Kidneys* are already in full working order, and

require only the presence of their natural stimuli to make them act. Accordingly, the infant has not been many hours in the world before the then watery milk of the mother causes the discharge, from the bowels, of the dark and slimy secretion called *meconium*, which has accumulated in them. They are now ready for the assimilation of the richer milk which speedily takes the place of the early watery secretion. The supplies of milk required by the infant being very frequent, and the quantity of bile and other fluid secretions being considerable, the bowels act frequently, and yield a more liquid discharge than in maturer life. The kidneys, stimulated in like manner by the watery nature of the food, become active, and secrete urine in small quantities, which also is frequently discharged—the bladder, like the bowels, being still of small capacity.

In addition to these channels of excretion, two still remain to be noticed—the *Skin* and the *Lungs*.

In certain states of the body and weather, the exhalation by the skin is very apparent and considerable. In ordinary states the exhalation is invisible, and is thence named insensible perspiration. During active exercise, or in hot weather, it appears in the form of sweat, or sensible perspiration.

The lungs constitute another important channel of excretion. In humid, still weather, perspiration and pulmonary exhalation go on very slowly; and hence the dulness and discomfort so often experienced under a "leaden" sky. When the air is dry, hot, and in motion, these processes may go on too fast, producing feverish irritability and thirst. On every account, then, constant attention should be given to the temperature, the moisture, and the purity of the air by which the young are surrounded. If, for example, we allow perspiration to be checked by prolonged exposure to cold and moist air, an effort will be made by some of the other excreting organs to get rid of the hurtful products retained in the blood, and which ought to have been thrown out by the skin; and this involves the risk of the over-activity thus induced terminating in disease. Hence the necessity of avoiding every cause likely to disturb the natural balance between the different excreting organs, and to throw the labour of one unduly upon another which is not intended for it.

To understand more fully, however, the importance of a healthy state of the *functions of excretion*, it is necessary to be aware of the highly noxious influence exercised by animal matter which has already served its purpose, and is retained in the system contrary to the intentions of Nature. When respiration, for instance, is seriously impeded, the venous blood ceases to be oxygenated, and can no longer get rid of the carbonic acid and other matter which are usually thrown out in its passsage through the lungs. The result is that for a short time it passes onward unchanged; but as it is unfit in that state for the support of life, death speedily ensues. In like manner, when the effluvia which ought to escape from the surface by perspiration are prevented from passing off, they tend to produce fever of a dangerous character. When, again, the urine is not duly secreted, the waste material which ought to have been eliminated by the kidneys remains in the blood, acts upon it as a poison, destroys the health, and, in extreme cases, soon causes death. The same thing holds good with the bowels. If they are not duly relieved, the exertion of the fæcal matter by the mucous membrane is impeded, and the blood is contaminated by its retention. At the same time the more fluid portion of their contents is absorbed into the system, whereby the residue acquires an unnatural hardness, and thus proves a direct source of irritation to the bowels, and increases their liability to disease.

The grand object to which all the various functions that we have just passed in review directly contribute is the *preservation and continuance of life*. Without them, the body would soon become mere inanimate matter, and, as such, fall into decay. Beyond this, however, they provide for nothing; and were man limited to the possession of these functions, he would have a merely vegetative existence. They are called *organic functions*. Their action being independent of the will, and unattended with consciousness, they go on whether we are awake or asleep. They are common to the whole animal kingdom, and, generally speaking, to the vegetable kingdom also—in short, to every substance possessed of *organisation*. Hence their distinctive appellation of *organic* functions.

But there is a higher class of functions, the *animal functions*. These have relation, not to the mere *life* of

man, but to *the purposes for which conscious life was given*; and they, as well as those styled organic, require organs for their performance. The brain, the organs of sense, and the organs of voluntary motion, are the great organs of the *animal functions*. It is through their instrumentality that all the operations of intelligence and of emotion—acts *peculiar to animals*—are performed. By means of the brain and the organs of sense, the infant becomes *conscious* of his own existence, and perceives that of the beings who minister to his comfort and safety. By the same means he sees and smells, hears and touches, and gradually learns to distinguish one object from another. Impressed agreeably by one object, he stretches his hand towards it by means of his muscles and bones—towards the light, for example, or towards his mother's breast; impressed disagreeably by another, he shrinks, by the same means, from its contact, and seeks for safety from injury. As he grows up, and his brain is developed and consolidated, his feelings acquire strength and permanency; he manifests kindness, and reciprocates affection; he resents and repels aggression, acquires a sense of property, seeks the love of those around him, imitates their actions, distinguishes what is just from what is unjust, and learns to clothe his feelings and ideas in words; and, as his years increase, becoming gradually acquainted with his position in the great family of mankind, he at length comes to recognise the duties which society imposes on him, and the consequent necessity under which he lies to seek that knowledge, and exercise that judgment, which shall best enable him to make his way in the world as an independent being. By the nobler of these powers and emotions, all of which act through the medium of the brain, man is distinguished from the beasts that perish; and to them he is indebted for the privilege of knowing and worshipping the one true God, the Author and Preserver of his being.

In consequence of a superiority of special organisation, some of the animal functions are possessed by the lower creatures even in higher perfection than by man. Thus, there are animals distinguished by greater acuteness of smell and hearing, by greater reach of vision and vivacity of passion; but in strength and comprehensiveness of intellect, in moral energy, and, above all, in that profound devotional

feeling which, more than any other, reveals to him the existence of, and connects him with the Deity, man stands alone.

From this short review of the higher or *animal* functions it will be evident that *they* constitute the really characteristic qualities of man, and that the *organic* functions are required merely to sustain the machinery through which the others operate. A man is not a man because he eats, digests, breathes, circulates blood, grows and decays; if he were, a sparrow or a fly might take rank along with him. He is a man because he *thinks*, *feels*, and *acts* in a certain way, and is the subject of moral responsibility; and he eats and digests *merely because he must possess organs by which to think, feel, and act, and these organs must be sustained in life and vigour.* He must have eyes, because, without a structure arranged in due relation to the properties of light, no luminous impression could be received; to hear, he must have ears, placing him in due relation to the vibrations of the air; and to act, he must have nerves, muscles, and bones. Pursuing the principle a little further, we shall see that the *mind* itself, to which impressions are conveyed, and from which the will emanates, must also be connected with organisation during life; and the organ with which it is more immediately connected is ascertained, beyond all doubt, to be the Brain. Strictly speaking, therefore, it is the *mind*, and its instrument the *brain*, which constitute the distinguishing features of man; and eyes, ears, legs, and arms are required only because, placed as we are in a material world, the mind could not there act upon material objects, nor be acted upon by them, unless it were associated with, and assisted by, material instruments.

Accordingly, there is nothing in the whole range of creation more wonderful, or more indicative of the omniscience and omnipotence of God, than the exquisite adaptation which everywhere subsists between the character of the individual organisms, and the instincts and powers by which animal life, in its various gradations, is characterised. Not only, indeed, is the organism of all kinds of animals peculiarly adapted to their wants and modes of life, but the modifications which it undergoes in the same individual, at different ages, are in admirable harmony with the position and circumstances of each. In the human being at birth, for example,

how tender the organism, how soft the bones, how frail the muscles, how feeble the senses, how defective the mind; but on the other hand, how active the nutrition, and how admirably in harmony with the constitution and wants of the infant! In beautiful accordance with the infant's mental state, Nature has, by the softness of its bones and the feebleness of its muscles, denied it all power of self-regulation, and consigned it to the watchful care of maternal feeling; and only in proportion as it grows, and becomes acquainted with the external world, does it acquire the powers of motion and self-regulation—because then only can it enjoy them in safety, or apply them to use. Arranged as is the order of the development of the functions by the omniscient Creator, how admirably does each harmonise with the others, and how perfectly do all contribute to one common end, the preservation and welfare of the creature!

Ushered into a world where everything is new to it, and where its safety depends at every instant on its proper treatment, the infant is thrown at first entirely on its mother for support and protection; and these are secured to it by the strongest feeling which woman can experience—that devoted love of offspring which seldom fails even amid the agonies of death. Ignorant of its own nature, and of everything around it, the infant is wisely denied such power of motion as it could use only to its own detriment. And, unable as it is to act for itself, ripened consciousness has wisely been withheld from it; for this would have added misery to its lot, without a single compensating advantage. It passes its earlier days in sleep and dozing, and wakes up only for a moment to satisfy the predominating instinct—the appetite for food, on which its future development depends.

CHAPTER VI

THE MANAGEMENT OF THE INFANT IMMEDIATELY AFTER BIRTH

THE new-born infant is so susceptible of cold as to be painfully roused by the sudden transition from the unvarying high temperature of the womb to the comparative coldness of even our summer atmosphere. Our first care, therefore, ought to be to envelop it in soft, warm flannel, and in cold weather to take it near a good fire, but out of the line of its direct rays. If the infant is active, and breathes freely, it may forthwith be washed, to free it from the tenacious coating of unctuous mucus which served for its protection in the womb, but which now becomes a source of irritation, and a direct impediment to the healthy action of the skin. The removal of this coating is most conveniently effected by immersing the child in a small warm bath, while the head is supported by the left hand of the nurse. In this way every part of the body is effectually protected from cold, while the position of the infant is one best suited to the feebleness of its frame, and most easily admitting of the head and face being thoroughly washed, without any risk of the impure water running into its eyes. After being carefully washed, it ought to be rubbed gently all over with a soft sponge, great care being taken not to chafe or injure the skin by too much friction. Treated in this manner, the mucus separates easily, and the use of soap or any oily substance in addition is rarely required. Part of the mucus is apt to adhere to the folds of the skin and joints, to the ears, eyelids, and other irregular surfaces, unless it be cleared away by very careful washing. But as the eyes are extremely delicate and easily injured at birth, great caution should be exercised not to touch them with the sponge

which has been used to cleanse the rest of the skin, or to allow any of the water, now loaded with impurities, to drop upon the eyes or eyelids. Neglect of this precaution may cause a severe form of inflammation of the eyes. To avoid all risk, clean water, and a clean sponge, should be used for washing the eyelids.

The temperature of the water used for washing the infant ought to be the same as that of the body—namely, from 96° to 98° Fahr. *Momentary* immersion in water two or three degrees warmer is sometimes very useful in rousing the vital energies of a feeble infant.

Immediately on being taken out of the bath, the infant should be placed on a large pillow, covered with several soft warm napkins, laid across the nurse's knees. By this means it may be dried easily and quickly, and *gentle* rubbing may be continued with the hand over the whole surface till a genial glow is excited. Everything used should be comfortably warm. The room also ought to be warm, and free from draughts.

If any part of the skin, after being gently but carefully dried, is observed to be ruffled, it should be dusted with a little puff-powder.

The infant being now washed and dried, a thin and fine flannel bandage, five or six inches broad, and long enough to go once or twice round the body, should be applied, partly for warmth, and partly to protect the navel-string, and prevent the bowels from being forced outward at the opening of the navel during crying or other sudden effort.

In cold weather, flannel is the best material for such a bandage; but when the skin is unusually tender, or the weather hot, a fine cotton or linen roller may be substituted. Occasionally, flannel lined with thin cotton or linen is used, but in this climate flannel itself is rarely found to be oppressive. Care must be taken not to make the bandage too tight.

Arrived at this stage of the proceedings, some merely wrap up the child loosely in a flannel shawl or blanket, and put it to sleep, the rest of the dressing being delayed till it awakes at the end of several hours. Others, again, complete the dressing before laying the child in its cradle. In determining which of these courses to follow, we may safely be

guided by the state of the infant. If it is very feeble, or fatigued by the washing and drying, the former plan will be preferable.

DRESS.—The leading qualities required in the clothing of infants are lightness, softness, and warmth; and it must vary according to the climate and season. In construction it ought to admit of being easily put on and taken off; and, while it affords ample protection to the body, it ought to admit the fullest expansion of the chest and abdomen, and perfect freedom of motion in the limbs. Provided it fulfil these ends, there will be no occasion for interfering with the mother's taste, or the fashion of the day. But whatever tends either to compress the body, or to restrain the arms or legs, ought to be unrelentingly forbidden; above all, every approach to the practice still prevalent in some parts of the Continent, of swaddling the infant like a mummy.

Flannel ought generally to be preferred for the whole of the dress in contact with the skin. From the protection which it affords, and also the gentle stimulus which it gives to the skin, it is extremely useful in warding off the internal congestions and inflammations, and the bowel-complaints, to which weakly children are liable. But when, as sometimes happens from unusual sensibility or other causes, flannel irritates the skin, cotton or fine linen should be preferred—care being taken never to put it on till it is made comfortably warm.

The chief things to keep in mind in regard to the dress of infants are, that perfect freedom of motion of the limbs, and the absence of all pressure on the chest or bowels from tightness of the dress, are indispensable to health; that the generation of animal heat is less active in infancy than at a later period of life; and that the dress ought to be such as to ensure due warmth at all seasons. But, however prejudicial exposure to cold may be in infancy, *excessive wrapping up*, or keeping the child *in too hot rooms*, is no less hurtful, and ought to be as scrupulously avoided. For obvious reasons, tapes and buttons should be used, instead of pins, for fastening the dress.

The common practice of dressing infants in long flowing clothes during the first few months is advantageous, by

protecting the body and lower extremities against cold air and draughts; and in cold weather the feet should be further protected by soft woollen socks or knitted worsted shoes, which keep the feet warm without compressing them.

The head is very commonly kept too warm in infancy. This is an improper practice. In warm weather, the thinnest possible covering will be sufficient for its protection; and even in cold weather, a warmer cap will be required only in the open air. When colds are induced by wearing thin caps, it is generally in consequence of the infant being laid to sleep with the head immersed in a very soft warm pillow, whereby an unusual flow of blood towards the head takes place, accompanied by considerable perspiration on its surface. In such circumstances, the rational remedy is, not to put on a thicker covering by day, but, by the use of a proper pillow, to guard against overheating by night. When the head is kept very warm, the nervous excitability is increased, so that the infant is easily affected by slight changes of temperature, and any accidental irritation is more likely to be followed by spasmodic or convulsive fits.

When, after the lapse of a few months, strength and activity become developed, along with that desire for motion which naturally accompanies them, the dress must be so arranged as to leave the feet unencumbered. Soft warm stockings and easy comfortable shoes are then advisable, but no compression in any form should be permitted. In making the change to short clothes, regard must be had to the weather, and due care must be taken to keep the legs and feet warm when the child is carried out of doors.

Nearly akin to dress by day is the provision of proper bedclothing during the night. If an infant is buried under a mass of bedclothes when asleep, and dressed in the ordinary way when awake, the mere transition will be hurtful.

In arranging night-coverings, the soft feather-bed is very often estimated as nothing; that is to say, the same provision of blankets is considered equally indispensable whether the child is laid upon a firm mattress or immersed in down. The mother, looking only to the cover-

ings laid *over* the child, is apt to forget those on which it lies.

But, as already mentioned, the infant possesses a low power of generating heat, and therefore requires to be rather warmly clothed during sleep, as well as during its waking hours. Yet here, as in everything, extremes ought to be carefully avoided.

CHAPTER VII

FOOD OF THE INFANT

For some weeks after birth, the whole time of the infant is passed in sleeping and feeding, and the predominant functions are those of digestion, nutrition, and excretion. Hence, the first and most imperative want, after the functions more immediately essential to life are fully in operation, is a regular supply of materials by means of which the nutrition and development of the body may be effected, and the waste of the system repaired.

Accordingly, no sooner does the infant awake out of its first sleep, than it manifests the activity of a powerful instinct, impelling it to supply the want. This instinct is the *appetite for food.* As soon, therefore, as the mother has sufficiently recovered from her fatigue—generally within eight or ten hours—the infant should be put to the breast. At first, the milk is secreted in small quantity, and, from its watery character, resembles whey more than milk; but during the next few days it gradually becomes more copious, rich, and nourishing. This arrangement is in admirable harmony with the state and wants of the infant. At birth the bowels are loaded with the dark and slimy *meconium* already mentioned, and the first step towards the preparation of the digestive organs for their functions is the expulsion of this now useless, and if longer retained probably hurtful matter. For this purpose nothing is so suitable as the watery milk first secreted. It affords to the bowels the requisite stimulus to action, without the risk of unduly irritating them; consequently, when the infant is freely admitted to the mother's breast, the meconium is usually cleared out within a day or two.

From ignorance of the general sufficiency of the means

thus provided by Nature for the expulsion of the meconium, it is still the practice with many nurses to withhold the breast till a purgative has been administered to the child. But in most instances this proceeding is wholly unnecessary, and in many it is injurious. Occasionally, no doubt, the aid of a mild laxative is required to avert a greater evil; but the medical attendant is the only judge of such a necessity, and unless by his direction none ought ever to be given. In the first milk of the mother, Nature has provided a laxative adapted to the delicate organism of the infant; and when we *unnecessarily* act in opposition to this arrangement, we incur the double risk of irritating the bowels of the child by the needless purgative, and of giving the mother pain from the unrelieved distention of her breasts.

When several hours after birth have passed without any action of the bowels, and the child obviously suffers from the delay, a few teaspoonfuls of tepid sugar and water, or half a teaspoonful of fresh-drawn castor oil, may be given. This will generally be sufficient, and more active medicines should not be administered without medical sanction.

Sometimes, from the imperfect health or constitution of the mother, the secretion of milk is delayed so long that other nourishment must be given to the child. Such retardation arises chiefly from previous inattention on her own part to the laws of health; and when it does occur, the child should be put to the breast from time to time, to solicit and aid the effort of Nature.

When, from the state of the mother, it becomes necessary to supply other food to the new-born infant, we should adhere as close as we can to Nature, and give that kind of nutriment which most nearly resembles the mother's milk. Were it possible to put the child to the breast of another woman also just delivered, it would be desirable to do so; but such an opportunity rarely occurs. The next best thing is to substitute ass's milk, or cow's milk diluted with more than a half of water and slightly sweetened. A few teaspoonfuls may be given at a time, and repeated at proper intervals, till the mother is able to nourish the infant herself; or still better, it may be given from a bottle properly fitted with an artificial nipple. Cow's milk given in this

way is decidedly preferable to gruel, panada, arrowroot, chicken-tea, or any other preparation not resembling the natural food of the child. At this early period, the digestive organs are unprepared for the reception of vegetable matter in any form. Cow's milk, properly diluted and sweetened, is, on the other hand, nearly the same in composition as the mother's milk, and is therefore the best temporary substitute for it. The greatest caution should be used not to exceed in quantity, and not to repeat the allowance oftener than about once in two or three hours. *A single ounce of milk, well digested, will yield more nourishment than double the quantity when it oppresses the still feeble stomach.*

In an ordinary state of health, and under ordinary circumstances, the flow of the mother's milk will be fully established within from one to three days after delivery; and, in exact proportion to the needs of the child, its nature will be changed from a watery to a more nourishing consistence. When this has taken place, and the mother continues in health, there is no reason whatever for giving the child any other food for several months.

The mother's milk being thus the natural and best food of the infant, the next point is to determine at what intervals to give it the breast. Here again it is indispensable to warn the mother against hurtful excess; for if the stomach is too frequently replenished, or too much distended, the digestion becomes deranged, and gripes and flatulence torment the child. The usual practice with the inexperienced and ignorant is to offer the breast whenever the child cries or shows the least indication of uneasiness, as if hunger were the only uneasiness which it could experience. From earliest infancy, *regular periods* should, as far as possible, be observed in giving nourishment; and it is surprising how soon the infant accommodates itself to the practice. The quiet repose enjoyed during the intervals is beneficial alike to parent and child, and is an ample reward for the small trouble required to establish the habit.

It is a great mistake to treat crying as an infallible sign of hunger. New as the infant is to the surrounding world, it shrinks instinctively from every strong sensation, whether

of heat or cold, of pressure or hardness, of hunger or repletion, and its only way of expressing *all* disagreeable feelings is by crying. If it is hungry, it cries; if it is over-fed, it cries; if it suffers from the prick of a pin, it cries; if it lies too long in the same position, so as to receive undue pressure on any one part, it cries; if it is exposed to cold, or any part of its dress is too tight, or if it is held in an awkward position, or is exposed to too bright a light or too loud a sound, it can indicate its discomfort only by its cries; and yet the one remedy of ignorant nurses for so many different evils is, not to find out and remove the true cause of offence—but to offer the child the breast!

It is a mistake to be anxious always to put an immediate stop to crying. There are two kinds of crying, which are easily distinguishable, and few mothers will long confound them and treat them as identical. As the infant has no other means of expressing any disagreeable sensation plainly enough to enforce immediate attention, crying ought to be considered simply as a signal of distress; and instead of constantly ascribing it to hunger alone, we should endeavour to discover the real exciting cause, and use the surest means for its removal. The kind of crying which hunger causes must never be confounded with the plaintive wail which characterises infantile disease.

The great principle of proportioning the supply of food to the quantity of material expended in growth and that carried away in waste, is no less applicable to infancy than to more advanced life. As, during the first weeks of existence, the infant does nothing but sleep, digest, and grow, it requires to be fed more frequently than at a later period. On an average, from two to three hours may be allowed to elapse between the times of feeding, and as it becomes older the interval should be gradually extended. If the breast be not habitually offered as the readiest means of silencing the crying child, there will seldom be any active desire for it at a shorter interval than two and a half or three hours. But if it be demanded *in an unequivocal manner*, the mother will be quite safe in yielding to the child's entreaties, only taking care that it does not overload its stomach.

During the night, as well as during the day, the infant requires to be fed, but not so frequently. At first it may demand the breast perhaps thrice in the course of the night, but afterwards twice or only once. Delicate mothers who wish to suckle their infants should have undisturbed rest during the night, the child being fed once or twice by the nurse with a little cow's milk and water. This arrangement will tend to preserve the mother's health, and enable her to suckle her infant when she might otherwise fail. There are great differences of constitution in children; some require and digest double the quantity of milk which suffices for others. The quality of the milk also varies with the health of the mother, and according as it is more or less nutritious the demand for quantity will vary. Hence it is truly important for the mother to be able to read aright the significant language of the infant, and, while she avoids too frequent feeding, never to refuse it the breast *when its call is clearly expressed* and its health is benefited by gratifying it. But if she mistakes the mere expression of uneasiness for appetite, and gives suck when only freedom from pain is required, the consequences will be an increase of uneasiness and indigestion in the infant, and perhaps irritation of the breast in the mother. When the infant rouses itself and seems rejoiced at the sight of its nurse, it is almost a sure sign that it is hungry. But if it continues unmoved and careless, or vomits frequently, or is plagued by colicky pains or a tendency to bowel-complaint, and especially if the evacuations are green and unhealthy and the skin is hot, it is clear that it is getting the breast too often, and that its diet should immediately be regulated accordingly. The nurse's diet should be inquired into at the same time, as it may require to be modified.

Fatigue, vivid mental emotion, and all other causes of violent agitation of the mother's system, produce an immediate and injurious effect on the quality of the milk. Hence the propriety, which every rational mother will perceive, of preserving habitual equability of temper, and of refraining from offering the breast for some time after fatiguing bodily exertion, or, still more, after much excitement of mind.

It is now generally agreed that, during the first six

months, no kind of food is so congenial to the infant as its mother's milk. Between parent and child there is a natural relationship of blood and constitution, which, during health, adapts them to each other with a harmony and completeness that can scarcely exist between the infant and any other woman. The mother, therefore, is peculiarly bound, by every tie of duty and affection, to become the nurse of her child, and nothing but ill-health and positive inability can excuse her for devolving this duty on another. It is true that, from feebleness of constitution or infirm health, some mothers are incapable of nursing, and must resign the duty to others, however ardently they may long to fulfil it. But it is no less true that, in many instances, the inability arises entirely from the mode of life they choose to lead, and from the want of ordinary self-denial in their diet and general regimen.

The amount and quality of the milk are greatly affected by changes in the health of the mother. It is copious and nourishing when her health is good, and becomes defective or altered when that is impaired, or her habits are improper. In the abstract, this is admitted by everyone, but when we point out to an ignorant mother the necessity of regular attention to open-air exercise, cheerful occupation, evenness of temper, early hours, and moderation of living, as the means whereby she may enjoy sound health and become a good nurse, we often find it difficult to make more than a momentary impression upon her. Uninstructed in the laws of the animal economy, she cannot see the importance of any observances the good effects of which do not become palpable within a few hours; and when perseverance in a right course is recommended as an indispensable condition of future benefit, she may, indeed, assent for the moment, but too often gives way to the first fancy that flits across her mind, or the first random advice that is offered to her. Having no fixed principles by which to guide her judgment, she cannot discriminate between what is in accordance with, and what is in opposition to, the laws of Nature.

Next to irregularities in diet, one of the most frequent causes of deranged health, affecting the qualities of the milk, is the neglect of daily exercise in the open air. The mother, unaware of the importance of regular exercise in sustaining

the general tone of the system, is often guided by mere fancy or convenience in going out, and considers neither the selection of the best time of day, nor the length, kind, and regularity of exercise, as of the slightest consequence. Proper exercise in the open air is, however, an essential condition of health, and none of the bodily functions suffer sooner from its neglect than digestion and the various secretions.

Except in the case of such delicacy of body or excitability of mind in the parent as ought to have prevented her from entering into the married state, or of the accidental attack of some serious disease, it seldom happens that the mother who pays due attention to the laws of health is unable to suckle her child. This might indeed have been inferred from the experience of the peasantry, among whom it is rare to meet with a mother possessed of the ordinary comforts of life who cannot nurse her infant. But then such a mother is generally placed in circumstances favourable to health. She is employed all day in active exertion, is much in the open air, has a sufficiency of plain nourishing food, without any temptation to excess in quantity or to the use of stimulants, observes early hours, and is free from the anxieties and restraints of fashion. Were the rich compelled to be equally observant of the laws of health, both during gestation and after delivery, we are entitled to infer that they also would be excellent nurses.

The circumstances which, among the middle and higher classes, are most influential in impairing the fitness of the parent for the duties of a nurse, are precisely those which deteriorate the general health—namely, neglect of exercise; living in over-heated, ill-ventilated rooms during the day, and worse-ventilated rooms, often made still closer by drawn bed-curtains, during the night; the use of soft, relaxing feather-beds; dissipation of mind, or the absence of any serious or healthful interest or occupation; indulgence in late hours night and morning, and giving way to passion and caprice of temper; eating more than the system requires, or the stomach can digest; drinking unseasonably or too largely of malt liquors, or other beverages; living in an unhealthy situation; inattention to the state of the skin, and to proper and sufficient clothing;

and, in short, all circumstances which are destructive of health.

Supposing the health of both mother and child to continue good, and the supply of milk abundant, no reason whatever can exist for giving any other food till the child is six or seven months old, when the teeth usually begin to appear. Both medical men and mothers sometimes advise the addition of gruel, arrowroot, or some other farinaceous food, almost from the first month; and the common results are, impaired digestion, and a greater liability to convulsions and other diseases of irritation, especially during the time of teething. But a full acquaintance with the laws of the animal economy, joined with an implicit reliance on the wisdom and benevolence of the Creator, teach us that the more closely we adhere to the path which He has marked out for us, the more successful shall we be in rearing the young.

Unfortunately, however, mothers are sometimes unable to supply a sufficiency of milk for the adequate nourishment of their infants, and it then becomes a question how the deficiency is to be supplied. Where the mother is healthy and the milk good, but too scanty to be the sole sustenance of the child, the balance is decidedly in favour of her continuing to suckle, and giving some mild supplementary food. But if the deficiency proceeds from impaired health in the mother, from her milk disagreeing with the child, or from any other cause likely to injure the nursling, the substitution of another breast is clearly indicated; and the sooner the change is made, the better for both mother and child.

Where additional nourishment is required, the principle for its right selection is that the kind be procured which is most nearly allied in its nature to the mother's milk. Ass's milk, or cow's milk diluted with water according to the age of the child, and slightly sweetened, comes very near to the qualities of the mother's milk, and therefore forms the best addition to it, when such is required. If it is found to agree, nothing else should be given till the appearance of the front teeth indicates the propriety of a change. But when, as occasionally happens, such milk proves too heavy, and gives rise to frequent vomiting, acidity, flatulence, and gripes, advantage may be derived from diluting it with

well-made thin barley-gruel instead of water. Sometimes, also, when diluted milk disagrees, the addition of a small quantity of rusk, or well-baked bread cut into slices and toasted almost to dryness, then boiled in a small quantity of water, to which milk is afterwards added, restores the evacuations to their healthy state. But, as already remarked, these additions are rarely proper in the first months of infancy; and when the diluted milk is found to disagree, it behoves the physician to satisfy himself, by careful examination, that no error is committed in the mode of feeding, or in the frequency and quantity of the meals, before having recourse to a change which may itself become the source of new evils.

When supplementary food of any kind is found necessary, we must be careful to imitate Nature by giving it very slowly. The milk drawn from the breast does not flow rapidly, and therefore, when ass's or cow's milk is given, a sucking-bottle should be employed, through which the supply should be equally slow. The milk should, if possible, be used fresh from the cow, and be made as near as may be of the same temperature as the mother's milk. This is best done by placing the sucking-bottle in warm water for a short time before feeding the child. To facilitate swallowing, the infant ought to be supported in a reclining position while feeding, as the improper custom of laying it on its back exposes it to the risk of choking. The moment it indicates indifference to its food, not a particle more should be offered.

In healthy infants the first teeth appear about the sixth or seventh month, but in delicate children often not till the twelfth or fifteenth month. In some families the late appearance of the teeth appears hereditary. The ordinary rule is to continue the nursing till after the appearance of the teeth, provided the mother retains her health, and the milk is good and abundant, and agrees with the child. It is the state of the health of both mother and child, and not the number of months since birth, that ought to regulate the diet. One child is as far advanced at four months as another is at six; and some additional food is usually given about the sixth or seventh month, not because it is the sixth or seventh month, but because at that age the incisor teeth are generally cut—a clear indication that the digestive

organs are now prepared for other food. And, in like manner, children are usually weaned at the end of the ninth or tenth month, not because a certain time has elapsed, but because about that age certain changes in the system, indicating the propriety of an alteration of food, generally occur. When, therefore, those changes are delayed, the change of diet ought also to be delayed, even for months beyond the ordinary time.

About the time, then, when the front teeth appear, milk, sweetened and thickened with a small proportion of arrow-root or barley-gruel, may be given twice a day, and the intervals between suckling be gradually lengthened. Where milk disagrees even when combined with farinaceous substances, let barley-gruel, or weak chicken or veal broth, thickened with some kind of farinaceous food, be substituted; care being taken to regulate the quantity according to the powers of the digestive organs of the child, and to give the food slowly by means of a proper feeding-bottle. If the child is lively and excitable, the gruel will suit best; if he is soft, lymphatic, and inactive, the chicken or even beef tea will prove more congenial to the system. One kind of food, however, will sometimes agree for a week or two, and subsequently produce indigestion; a change must therefore be made as occasion requires, and no obstinate adherence to routine should be allowed to interfere with the welfare of the infant.

The utmost care is necessary to keep the bottle with which the child is fed perfectly clean and free from all odour. The farinaceous food should never be added to the milk till the moment of feeding, and the bottle, immediately after it has been used, should be thoroughly washed and laid in a basin of cold water.

WEANING.

The next subject to be considered is the time and manner of *weaning*—a process which used to be much more formidable than it is now.

The time of weaning ought to be determined chiefly by two circumstances—the health and state of the mother, and the development and health of the child. When the health of the mother continues perfect, and the supply of milk

abundant, weaning ought, as a rule, to take place about the ninth or tenth month, when the development of the teeth usually shows that a change of food is proper. But in delicate children teething is often delayed several months later, and in such a case weaning ought also to be delayed, that the organism may be fully prepared for the change. Cases, however, occasionally happen, where the first teeth do not appear for a year, or sometimes two years, even when the children are not particularly delicate. This occurs as a peculiarity in some families. In most cases, the general development of the child must be more considered than the condition of the teeth.

In weak scrofulous children the teeth are often late in appearing, and this may generally be taken as a sure sign that the breast ought still to be the chief source of their nourishment, whatever their age may be. At the same time, if the child is not thriving, chicken-broth may be given once or twice a day, and its improvement under this treatment will be an indication that it may be gradually weaned.

If, before the expiration of the usual time of nursing, the supply of milk proves insufficient for the nourishment of the child, and the health of the mother begins to suffer, it may become necessary, for the sake of both, to wean it gradually before any indications of teething are seen. But in this case, weaning is recommended not as proper in itself, but merely as the smaller evil.

The important rule in weaning is, *to accustom the child gradually to the use of other nourishment*, and to withdraw the breast from it by equally slow degrees. The transition, when made suddenly, may lead to the direct injury of both mother and child. If, when the front teeth begin to appear (about the sixth or seventh month, for example), some light food be given once or twice a day, and the quantity be afterwards gradually increased and repeated so as to lessen the desire for the breast in an equally gradual manner, weaning will be found comparatively easy and safe for both mother and child. It ought never to be effected while the infant suffers under the irritation of teething or any active disease.

After the child has been weaned, its principal nourishment ought still to consist of the liquid or semi-fluid

substances which have for some time constituted its supplementary food; and no considerable change in this respect should be permitted until after the appearance of the eye-teeth. As growth advances, however, some addition may be made to the diet previously in use. But whatever modification of it is allowed, the utmost care should be taken to guard against too full and nourishing a diet soon after the weaning has been accomplished.

One of the chief sources of danger at the time of weaning, is the tendency of the mother or nurse to consider every cry of the child as a sign of hunger, which she must hasten to satisfy. By yielding to this impulse she often unwittingly increases the natural irritability of the infant constitution, till, by the indigestion arising from too frequent feeding, mere irritability passes into disease. Rightly managed, the child soon becomes reconciled to the change in its diet, and resumes its natural placidity.

When a striking increase of appetite, amounting to craving, shows itself soon after weaning, and especially when it is accompanied by evident fulness in the abdominal region, it ought at once to arrest attention. Generally speaking, these symptoms are the result of over-feeding or of too rich a diet.

ABUSE OF MEDICINE.—Before concluding this branch of the subject, I must caution mothers and nurses very earnestly against having recourse to medicine in order to remedy every little ailment which may appear during the time of nursing or weaning. Unfortunately, there is a common tendency to consider disease as an extraneous something thrust into the system, which must be expelled by force before health can be restored, and with which the mode of management has little or nothing to do; whereas disease is merely an aberration from the regular mode of action of the organism, generally caused by errors in regimen, and often to be put an end to by returning to a right course. The consequence of the error is, that, on the first symptom of disease, medicine is resorted to for its expulsion, while the cause is left to operate undisturbed. It is the commonest of all declarations in the nursery, that "the child was uneasy, or griped, or feverish, and *I gave it so and so*," without the most distant allusion being made to *why* it

was uneasy or feverish, or whether anything was done to remove the cause. There is no more pernicious habit than that of resorting to drugs in every ailment of the child, and the mother or nurse who makes frequent use of them without advice is unfit for the duties imposed on her.

CHAPTER VIII

CLEANLINESS, EXERCISE AND SLEEP IN EARLY INFANCY

In infancy, Cleanliness is of the first importance to health. Not only is the skin extremely delicate, sensitive, and easily injured, but it is the seat of a continual *excretion* or *exhalation* of waste matter in the form of perspiration. The perspired fluid holds in solution some animal matter and various saline substances; besides which, there is a secretion of an oily matter from the cutaneous surface, to keep the skin soft and pliable, and also, in some degree, to protect it from injury. This secretion is most abundant on the scalp, in the arm-pits and folds of the joints, and on the forehead and nose. It is this oily matter which prevents the hair from becoming dry, and causes water applied to the skin to gather into globules. In the folds of the skin it prevents the contiguous surfaces from irritating each other, as, by their mutual friction, they would otherwise be apt to do.

In infancy, this oily secretion rarely exceeds in quantity what is absolutely required to preserve the softness and pliability of the skin; and during health, unless allowed improperly to accumulate, it never gives rise to any unpleasant odour.

When the impurities thrown out by perspiration are allowed to remain long in contact with the skin, they become a source of irritation, and, by obstructing its pores, impede further exhalation. The consequence is, that the waste matter is either partly and hurtfully retained in the system, or it escapes through some other channel, such as the bowels, kidneys, or lungs, at the risk of deranging these organs by over-tasking their powers.

Keeping in view the composition of the perspired matter, we must provide, in the first place, for the ready escape of the invisible vapour which forms so large a portion of it,

and, secondly, for the frequent removal of the solid saline residue left in contact with the skin. The former purpose will be completely effected by using a light porous dress, not too tightly fitted to the body, and by frequently changing it. The latter purpose will be best accomplished by frequent and regular ablution with tepid water. Some recommend the use of soap; but as the saline particles are soluble, and easily removed by water alone, and as the soap serves only to combine with and remove the oily secretion, I consider such an addition as in general unnecessary, and frequently hurtful, in early infancy. For removing any *external* or accidental impurity from the hands, face, or arms, soap is useful, and even necessary. But applied habitually to the whole body, it is injurious; for the removal which it effects of the protecting oily secretion leaves the yet tender skin dry, harsh, and subject to cracking and painful excoriations.

The safest and most convenient way of washing the infant in warm water is unquestionably by immersion in a bath comfortably arranged for the purpose. By this means its wet body is exposed to the air but for a moment, when about to be dried; whereas, when the child is placed in a small tub, with the greater part of the body out of the water, and is washed by laving the water over it with the hand or a sponge, the continued and repeated exposure of its delicate skin to the warm water and cold air alternately is apt to be followed by chills or other bad consequences. The bath, therefore, ought always to be preferred; and, while the child remains in it, the whole surface of the body, and especially the folds of the skin and joints, should be carefully rubbed with a soft sponge, so that every vestige of impurity may be removed. The infant should then be quickly but gently rubbed dry with soft napkins, and afterwards with the hand, and be carefully dressed.

The best time for washing it is in the morning as soon as it is taken out of bed; and for bathing, the evening, after its last meal, and before being put to sleep. If, from the delicacy of the child, or any other cause, there arises a necessity to give it the breast immediately on awaking in the morning, it is better to delay the washing and dressing for an hour or more, till digestion be advanced.

On account of the great susceptibility to cold which exists in infancy, and the difficulty with which the system

resists the influence of any sudden change, the temperature of the water ought, at first, to be nearly the same as that of the body—namely, from 96° to 98° Fahr., and always to be regulated by a thermometer as the only sure test. If the nurse judge by the hand alone, she will often commit an error of several degrees.

In addition to the regular morning ablution, the tepid bath should be repeated every evening for a few minutes. Properly managed, and of the right temperature, it has the double advantage of soothing the nervous system and promoting an equable circulation of the blood towards the surface. To restless and irritable children, also, the evening bath is often of the greatest advantage, from the quiet and refreshing sleep which it rarely fails to induce. It ought not, however, to be either too long continued or used in a cold room, or immediately after nursing or feeding.

We sometimes, though rarely, meet with children who, from mismanagement or some other cause, are frightened by immersion in water, and others with whom the bath decidedly disagrees. In such instances, of course, it ought to be given up, and simple washing or sponging with tepid water should be substituted. But in all circumstances, the greatest care must be taken never to allow an infant to be exposed to the air with the skin even partially wet.

Some physicians and parents prefer the cold to the tepid bath, even from birth; but reason and experience concur in condemning it, and it is only when the infant is strongly constituted that it escapes unhurt from the use of the cold bath. After the lapse of a few months, however, the temperature of the water used for the morning ablution should be gradually reduced, provided the child continue healthy and the season of the year be warm. I need scarcely add, that when sufficient reaction and warmth do not speedily ensue after the use of cold bathing, it ought to be immediately abandoned, and the tepid bath substituted in its stead.

At whatever temperature ablution and the bath are used, gentle friction of the whole body afterwards, with a soft dry towel or flannel, will be both useful and agreeable. In warm weather the child may, before being bathed, be allowed to play about for a few minutes undressed, and to enjoy the luxury of what Franklin calls an air-bath. In this respect its own pleasure may be consulted. If it is

strong enough to bear the exposure with advantage, it will seek it; if not, it will shun the contact with the air, and of its own accord seek for shelter.

Another important element of cleanliness in infancy is the immediate removal of every soiled or damp portion of the dress, and the careful washing from the skin of every vestige of impurity arising from either of the natural evacuations. In early infancy the discharges from the bowels and bladder are frequent and involuntary; but after a short time, an attentive nurse can generally discover some indications of what is about to happen, and take measures accordingly. It is surprising how early regularity in this respect may be introduced.

EXERCISE.—In infancy motion of the body is as essential to health, and the desire for it is as unequivocally manifested, as at any period of life. To regulate it properly, we have only to keep in view the state of the infant organism, and the laws under which the principal functions are performed; so that neither the bones nor the muscles, while in their soft and feeble condition, shall be required to do duty beyond their strength. At first, the exercise of the infant ought to consist simply in being carried about the nursery or in the open air, in a horizontal or slightly reclining position on the nurse's arm; and in gentle friction with the hand over the whole surface of the body and limbs after the bath, an operation which is no less agreeable to the infant than beneficial in promoting a free and equable circulation. Those parents are greatly to be blamed who, for their own amusement, excite their infants to muscular exertion long before the organism is fit for its beneficial performance. But while active exercise is incompatible with the condition of the infant, the passive exercise implied in being carried in the nurse's arms and exposed to the wholesome and invigorating influence of the open air, is eminently favourable to its health, and should be given to a much greater extent than it generally is. In a climate like that of Britain, prudence is of course required to protect the infant with clothing suitable to the season, and never to expose it needlessly in harsh damp weather. When the child is born in summer or late in spring, its exercise should be confined to the limits of

the nursery and adjoining room, well ventilated for the purpose, for about ten or fourteen days; after which it may be cautiously carried into the open air for fifteen or twenty minutes at a time. But when it is born in winter or late in autumn, it ought not to be taken out till after the lapse of four or six weeks, and then only in fine mild weather and for a short time, till it becomes habituated to the air.

Whatever the season of the year may be, much caution is required to avoid injury from thoughtless exposure to the strong light of day, and more especially to bright sunshine. For several weeks the eye is extremely delicate and susceptible of injury, and vision very imperfect.

In fine summer weather, a child can scarcely be too much in the open air, if the morning and evening dews and chill be avoided; and therefore the daily exercise out of doors should be gradually and cautiously extended, from fifteen or twenty minutes at first to an hour or two, and at last to several hours a day, in proportion as it can be borne. Most infants delight in the open air, when they are sufficiently protected; but in winter and spring much caution is required on account of the great and dangerous susceptibility of cold at that age.

Influenced, then, both by experience and by knowledge of the infant constitution, we ought to beware of exposing very young or delicate children to the full force of the cold in winter or spring. After the first month, healthy infants, if properly protected from the weather, may be advantageously taken out in fine days even in winter; but the early part of the day, and the most sheltered situations and purest air, should be chosen for the purpose. If, notwithstanding every precaution, the child give indications of suffering, or of being depressed by the cold, we should abstain for a time from sending it out, and give it the necessary exercise in a large well-aired room.

When an infant is taken out for exercise, the nurse should be careful never to carry it *in a sitting posture*, during, at least, the first four or five months. If this precaution be neglected, its large and heavy head will be observed to hang over on one side, in such a way as to impede the breathing. When the child is carried out in the nurse's arms, the arm on which it rests should from time to time be changed; this alternation will be equally advan-

taneous to nurse and infant. After the fourth or fifth month, the sitting posture may be allowed for a few minutes at a time, if the child seems to like it.

In *lifting* young children, the nurse should be very careful always to place her hands, one on each side of the chest, immediately below the arm-pits, and never to lay hold of the child by the arms, as is sometimes thoughtlessly done. In infancy, the sockets of the joints are so shallow, and the bones so feebly connected with each other, that dislocation of the arms, and even fracture of the collar-bone, may easily be produced by neglecting this rule.

The common custom of dandling, swinging, and jolting very young infants, is highly improper. In a very moderate degree such exercises seem to be agreeable to them, and need not be prohibited; but in the rough way in which they are sometimes administered, they cannot but be prejudicial.

When an infant is strong enough to be placed in a sitting posture, exercise in a child's carriage is preferable to being carried in the nurse's arms; but in cold weather, great care must be taken to protect the child by proper clothing from being chilled.

When a certain degree of strength has been acquired, a desire for more extended and independent motion gradually shows itself, which many nurses are in the habit of gratifying by fostering premature attempts at walking. The best way, however, of indulging this new craving, is to place the child on the carpet, and allow it to move and extend its limbs, crawl on all-fours, or tumble about at its own pleasure —putting, at the same time, a few playthings within its reach. To facilitate this, the ordinary long dress ought to be curtailed about the fifth or sixth month, or as soon as the power of self-exercise shows itself.

By exercise thus adapted to the state of the system, the infant will be strengthened, and learn to walk much sooner, and with a more firm and erect carriage, than if too early set on its feet and supported either by the arm or by leading-strings. The chest also will be more fully developed, and the whole system consequently benefited. With moderate caution on the part of the attendant, there is nothing to fear in thus indulging the child; for it is even amusing to see how careful it generally is about its own safety when left to itself. Remove all external means of injury, and leave the

child to its own direction, and it will very rarely hurt itself. It will crawl till its bones become firm enough to bear the weight of the body, and its muscles powerful enough to move them.

The next stage of exercise is *walking*; and here again, provided we do not stimulate the infant to premature efforts, we may safely trust to itself. After a child has acquired a certain degree of vigour and command over its muscles by crawling about, it will begin of its own accord to try to stand and walk, by laying hold of chairs, or seeking a little support from the nurse. But we should be careful not to entice it to walk before the bones and muscles are adequate to the exertion. When support is given by leading-strings, it is at the risk of compressing and deforming the chest; when, on the other hand, the child is upheld by one arm, the immediate effect is to twist the spine and trunk of the body; while, in both cases, the lower limbs are apt to bend, and the child, by constantly trusting to its conductor's guidance and protection, acquires a heedlessness in its exertions which is prejudicial alike to body and mind. The strong effort of the will required to execute every movement gracefully and successfully is withdrawn, and gives place to an indifference which is fatal to unity of action in the delicate muscles. A child trained to walk independently may, no doubt, get a few falls; but on the supposition that all hard bodies have been removed out of its way, and that it is practising on a carpet or a lawn under the superintendence of a watchful nurse, it runs far less risk of sustaining injury from falls than it is certain to do if leading-strings and other artificial supports are substituted, which tempt it into fallacious estimates of its strength. The personal experience of a fall teaches the child much more effectually how to avoid future accidents than a thousand exclamations of caution from its nurse. In infancy, as in later life, the grand principle of education ought to be to promote *self-regulated action*, whether of body or of mind, and to guide inexperience to the mode in which Nature intends the action to be performed. So long as we continue to be machines moved by the will and defended by the prudence of others, we cannot acquire that strength of body or that degree of mental endowment of which our constitution is naturally susceptible. Even from early infancy this principle holds good.

SLEEP.—During the first month or two of life the powers of the system are wholly occupied in carrying on digestion, nutrition, and growth, and the time of the infant is divided between sleeping and feeding. Indeed, it can scarcely be said ever to be awake; and only after the lapse of several weeks do sensation and consciousness become sufficiently active and distinct to constitute intervals of real wakefulness. At this period, then, it is not so much the length of sleep, or the best time for it, that requires our attention, as the situations and conditions under which sleep ought to be allowed.

From the first the infant should sleep in its own bed or cot, care being taken to have it sufficiently covered, particularly in cold weather. An excellent addition to the usual coverings of a child's cot will be found in a small *duvet*; it is at once the lightest and warmest of coverings, and may be used or omitted according to the temperature of the room.

After the first month the bed should be without curtains. These exclude air as well as light; and therefore, when the child goes to sleep, it is far better to darken the room by means of window-shutters, than to attach curtains to the cradle. When, again, a nursery is so badly constructed that the cradle must be exposed to a draught wherever it is placed, a screen will afford a necessary protection. The modern suspended cot is an improvement on the old-fashioned cradle, and its additional height from the floor is useful in allowing greater accessibility to the mother's bed.

As to the length of time to be allowed for sleep in infancy, it has been already remarked that, for three months after birth, nutrition and sleep constitute nearly the whole sum of existence. The infant awakes to feed, and presently goes to sleep again. In proportion as the organism develops, the desire for activity will increase, and that for frequent sleep diminish; and it is our business to follow in the footsteps of Nature, and merely remove any impediments which accident may throw in her way.

Regularity also ought, as far as possible, to be observed in the hours of wakefulness and sleep. In the animal economy, there is a periodicity, adapted to that of the physical world, which tends to bring about the same state of the system at regular intervals, and which it is important to cultivate. Unless regularity of sleep be established

and adhered to, neither mother nor child can enjoy during the night that undisturbed repose which is so essential to health.

While endeavouring to accustom the child to regular hours for eating, sleeping, and all other natural operations, we should, especially as it grows older and stronger, bear in mind that night is peculiarly the season for sleep, and that no arrangement should be permitted to interfere with the natural tendency to it at that time. Guided by this principle, we should endeavour to regulate the habits of the child in such a manner as to appropriate an hour or two in the middle of the day to that sleep which, more or less, all children then require till after two or three years of age. Their activity may not be entirely expended, but under a judicious system of management they will be perfectly ready at this time for an interval of rest; whereas if they be excited to activity, and sleep be deferred to a later part of the day, it will always be at the risk of producing restlessness in the early part of the night. To nervous, excitable children, the midday sleep is very beneficial, and in their case, it may often be continued with great advantage for the first three or four years, and even longer.

When a child is put to sleep, whether by night or by day, *light and noise ought to be carefully excluded.* Even when these do not prevent sleep, they tend to render it troubled and unrefreshing. Many persons act in opposition to this rule, and think it of no consequence what talking or noise goes on in the nursery, provided the infant be not roused up broad awake. This is a pernicious mistake.

When the stomach is distended, and digestion just beginning, sleep is apt to be uneasy and disturbed. The infant, therefore, ought not, as a general rule, to be put to rest immediately after a full meal. During the first month, no doubt, it goes to sleep directly after having the breast; but at that early age it takes little at a time. It is at a later period that the precaution requires attention.

So much must always depend on individual constitution, health, and management, that no fixed hours can be named at which the infant should be put to rest. If it sleeps tranquilly, and when awake is active and cheerful, and if its various bodily functions are executed with regularity,

we may rest assured that no great error is committed, and need not concern ourselves whether it sleeps an hour more or an hour less than another child of the same age. Where, on the contrary, it sleeps heavily or uneasily, and when awake is either dull or fretful, and the other functions are perverted, we may be certain that some error is committed, and that the child is either rocked to sleep immediately after a full meal, or otherwise mismanaged by the attendant.

There are few things which distress an anxious mother, or annoy an impatient nurse, more than sleeplessness in her infant charge, and there is nothing which both are so desirous to remove by the readiest means that present themselves. A healthy child, properly treated, and not unduly excited, will always be ready for sleep at the usual time; and when it appears excited or restless, we may infer with certainty that some active cause has made it so, and should try to find this out and remove it. If no adequate external cause can be discovered, we may infer with equal certainty that its health has in some way suffered, and that it is sleepless because it is ill. In this case, the proper course is to seek professional advice, and to employ the means best adapted to restore the health; after which, sleep will return as before. From overlooking the true origin of the restlessness, however, and regarding it merely as a state troublesome to all concerned, many mothers and nurses are in the habit of resorting immediately to laudanum, sedative drops, poppy syrup, spirits, and other means of forcing sleep, without regard to their effects on the disease and on the system; and are quite satisfied if they succeed in bringing on the appearance of slumber, no matter whether the reality be sleep, stupor, or apoplectic depression. The mischief done in this way is inconceivably great.

Flowers and strong-smelling perfumes ought to be excluded from the sleeping apartments of infants, as they act injuriously on their delicate nervous system.

In infancy, as in adult age, it is highly conducive to health and sound sleep that the night and bed clothes should be thoroughly purified by several hours' exposure to the air every day, immediately after the child is taken up. The effect of perfectly fresh coverings is soothing and healthful in a high degree.

CHAPTER IX

ON THE CHOICE AND REGIMEN OF A NURSE

It sometimes happens that, notwithstanding every attention, the inability of the mother to nurse her child becomes so decided as to compel her to desist from the attempt, and to procure a substitute.

From the exposition already given of the intimate relation which subsists between the constitution of the mother and that of her infant, the reflecting reader will judge that, in the healthy state, her own milk is that which is best adapted for the support and nourishment of the child; and that, when a nurse is required, care should be taken to select one resembling the mother as closely as possible in all essential points. As a general principle, this is unquestionably true. But in practice it often happens that the very circumstances which force us to employ a nurse are those which also oblige us to depart from this principle, and prefer a woman of an entirely different constitution. Before entering on the consideration of these exceptions, however, we shall first briefly direct attention to several conditions, in regard to which it is important to the infant that the nurse should approximate more or less closely to the mother.

In all ordinary cases it is an advantage that the mother and nurse should be nearly of the same age. By this I do not mean that, when a delicate young woman becomes a mother at the premature age of seventeen or eighteen, we should take pains to procure a nurse equally immature in constitution; or that, when a woman at the extreme verge of the child-bearing period gives birth to an infant, we ought to consign it to the charge of one equally advanced in years. Neither of these extravagances is required; all that is wanted is, that the offspring of a young mother should be suckled by a young in preference to an old nurse, and that

the child of a woman in middle life should be suckled by a nurse arrived at least at maturity. This reasonable degree of adaptation between the nurse and child is required simply because the quality of the milk is influenced by the time of life, and the milk of a woman of forty years of age is found not to be suitable for the infant of a woman of twenty. In like manner it is desirable that both mother and nurse should have been delivered nearly about the same date, because the quality of the milk alters with the lapse of time. Some resemblance, moreover, between mother and nurse in the general form and proportions of the body is advantageous, as experience has shown that the children of thin, tall mothers rarely thrive on the milk of short, thick-set nurses. In selecting a nurse, special regard ought also to be had to the general constitution of the mother, whether our object be to counteract or to develop the peculiarities which the infant has derived from her.

The causes which disqualify a mother for nursing may be divided into two kinds. Under the first head may be included the comparatively rare cases in which a well-constituted and previously healthy mother is rendered incapable of nursing, either by a sudden attack of illness, or by some unforeseen accident, not admitting of an immediate remedy. In such cases, the general principle applies almost without modification; and if it were possible to procure a nurse resembling the mother in all respects, there cannot be a doubt that she would be the fittest substitute. Where, however, as most frequently happens, a nurse becomes indispensable from the mother's constitutional delicacy, instead of seeking points of resemblance to the parent, our chief object is to find a nurse free from the constitutional debility, and liberally endowed with all the properties in which the mother is defective. It is only thus that the infant can be preserved from the injurious influence of the impaired constitution of the parent. Experience has amply proved that the greatest benefit may result from transferring the feeble child of a delicate mother to the breast of a healthy and vigorous nurse—to one, in short, whose superiority lies in the very qualities in which the parental constitution is most defective. At the same time, the *general character* of the nurse's constitution, however healthy, should not deviate too far from that of the mother.

I have already observed that, in all cases, regard should be had to the relative dates of delivery of the mother and nurse. This caution is required because the milk secreted immediately after the birth of the infant is very different in its properties from that which is secreted a month or six weeks later. The inconvenience can be remedied in a great degree by putting the nurse upon a light, cooling, and rather fluid diet for the first few weeks; and this should always be done when her milk is older than that of the mother. During the whole period of suckling, the diet of the nurse should be strictly regulated. A tranquil mind and even temper are particularly desirable in a nurse, and care should be taken to inquire into this point.

A strong reason for rejecting a nurse characterised by a bad temper, or other moral disqualifications, is the general system of mismanagement and concealment which cannot fail to ensue, and which it is sometimes very difficult for the mother to detect. The character of the nurse, indeed, makes such a difference in the manner of doing a thing, and consequently exercises so direct an influence on the welfare of her charge, that the infant will sometimes be observed to pine under treatment which appears, to a superficial observer, the same as that under which it formerly throve. We may be unable to point out a single omission in the treatment required, yet, *in the manner* of conducting it, enlightened maternal affection may, on careful inquiry, discover a difference amply sufficient to account for the difference of effect. No watching or exhortation by the parent can remedy a deficiency like this; the only security against it lies in a right choice at the first.

When a mother suckles her own child, she takes the alarm at once, and seeks an immediate remedy when she finds the supply of milk insufficient for its support. But it is otherwise with an ill-chosen nurse. Not feeling the same strong interest in the well-being of the infant, and afraid of losing her situation by confessing that her milk is deficient, she is often tempted to conceal the fact, and give the child in secret some unsuitable food, in the hope that the deficiency will not be discovered. From the very concealment which is practised, it is in the highest degree improbable that the food so provided will be either proper

for the child, or given at proper times and in a proper manner.

The choice of a nurse ought never to be finally decided upon without the sanction of a well-qualified physician, whose duty it is to inquire and examine carefully into the state of her health. We have reason, however, to know that this very important and responsible duty is often performed in a very careless manner. External appearances are sometimes deceitful, and a healthy-looking nurse may in reality be very unfit for the purpose. At the same time, there are certain requisites which afford a strong presumption of fitness, and which ought therefore to influence our decision. Among these may be mentioned sound health, a good constitution, and freedom from any hereditary taint; moderate plumpness, a fresh and clear complexion, clear, cheerful eyes, with well-conditioned eyelids; deep, red-coloured lips, without crack or scurf; sound white teeth, and well-formed, moderately firm breasts, with nipples free from soreness or eruption. But even with such indications, we should still inquire into the state of the principal bodily functions, and make sure that there is a sufficiently copious secretion of good milk. Of both the quantity and the quality of the milk we may form an opinion by examining the condition of the nurse's own child—whether it is plump and healthy, or the reverse. Of the good quality of the milk we may judge also by its bluish white colour, somewhat watery consistence, slightly sweetish taste, and the absence of smell. Dropped into water it should have a light cloudy appearance, and not sink at once to the bottom in thick drops. But, upon the whole, the surest test is that afforded by the state of the nurse's child. If we find it healthy, active, good-natured, and neatly kept, we have one of the surest tests of the qualities of the nurse.

When a nurse is installed, it is advisable that the mother should for a time watchfully superintend her proceedings, and assure herself, by frequent and unexpected visits to the nursery, that everything is attended to with due regularity and in a right spirit. If it be found that the nurse is, of her own accord, regular in suckling the child, scrupulously attentive to cleanliness, gentle, patient, kind, and never put out of humour by fretfulness or by being roused in the night, and that she is habitually contented, cheerful, and

active, the mother may then lay aside anxiety. But if, on looking into the nursery unexpectedly, she find the child hungry, fretful, or dirty, the room badly-aired or over-heated, and the nurse sullen, indifferent, or slothful, she may at once decide that the woman is unfit for her charge. When a good nurse is once secured, the mother can scarcely overrate her value, or be too careful to attach her to herself and the infant. But no excellence in the nurse can absolve the mother from the duty of watching over the health of her child in all essential points. By doing this carefully in the case of her first child, the intelligent young mother will understand the management of her future children much better than most nurses who may have had the charge of numerous children. Nurses are not sufficiently educated to profit by their experience, and, for the same reason, they are generally presumptuous and full of prejudices.

Of all the vices to which nurses are liable, one of the most injurious is intemperance, whether open or secret, and the similar practice of taking opiates or other narcotics, by way of procuring rest and supporting the strength. Even the too liberal use of porter or ale, so common with mothers and nurses, is not unattended with permanent danger, and ought to be scrupulously guarded against. Many women, acting on the notion that extraordinary support is required during the time of suckling, have sunk by degrees into the lowest state of degradation, from imprudent, and what they considered necessary, indulgence in fermented liquors. We have already seen that Nature provides for the demand by a moderate increase of appetite and digestive power, which ought to be gratified by ordinary wholesome food, but not excited still further by the use of fermented liquors of any kind. Occasionally, no doubt, wine or malt liquor is required to keep up the health and strength, but in such cases its use ought to be cautiously regulated. The best nurses require no stimulants.

But perhaps the worst of all the bad practices of which a nurse can be guilty, and certainly the one most directly destructive of infant life, is the habit in which many mothers, as well as nurses, indulge, of administering, of their own accord, strong and dangerous medicines to children.

In addition to cases of absolute poisoning, so prevalent among the manufacturing population, from the habitual

drugging of infants with laudanum to keep them quiet or asleep during their mothers' absence at the mill, it is well known to practitioners that much havoc is made among young children by the abuse of calomel and other medicines, which may procure momentary relief, but often cause incurable disease in the end; and I have been astonished to see how recklessly remedies of this kind are had recourse to, on the most trifling occasions, by mothers and nurses, who would be horrified if they knew the potency of the drugs they were giving, and the extent of injury they were inflicting. Whenever a child shows any symptoms of uneasiness, instead of inquiring whether it may not have been caused by some error of regimen, which only requires to be avoided to remove the suffering, many mothers and nurses act as if it were indispensably necessary to interfere immediately and forcibly with the operations of Nature, by giving some powerful medicine to remove the uneasiness, and, if relief does not soon ensue, by repeating the dose. In this way it is not uncommon for a medical man to be sent for in alarm, and told that the child began to complain at such a time—that, *notwithstanding* that a dose of calomel, or laudanum, or tincture of rhubarb, was immediately given, and repeated several times, it is still very ill, and becoming hourly worse, —and that, if he cannot *do something* instantly, it will soon be beyond recovery. Whereas it may appear, on examination, that there was at first only a slight indisposition, which required no active treatment at all, and that the urgent symptoms were caused solely by the intended remedies.

That there are cases of disease in which active means must be promptly used to save the child, is perfectly true; but these are cases that no mother or nurse ought to attempt the treatment of. As a rule, indeed, where the child is well managed, medicine of any kind is very rarely required; and if disease were more generally regarded in its true light, simply as an aberration, produced by some external cause, from a natural mode of action, we should be in less haste to attack it by medicine, and more watchful, and therefore more successful, in preventing and removing it. Where a constant demand for medicine exists in the nursery, the mother may be sure that there is something essentially wrong in the management of her children.

It sometimes happens that the quality of the milk

becomes deteriorated by the unexpected renewal of the monthly period in the nurse; and if the fact be concealed the child may suffer, without any suspicion of the true cause being excited. Occasionally it becomes necessary, in such circumstances, to change the nurse; though in other cases, if the nurse be really healthy, the child will continue to thrive as well as before, especially if assisted at intervals by a little suitable food. The possibility of such a change taking place ought therefore to be kept in mind, and a remedy provided when it does occur and is attended with bad effects. It is in the earlier months of infancy that serious mischief is most likely to arise from this cause. When the change takes place after the sixth or seventh month, it is usually of less consequence.

CHAPTER X

ARTIFICIAL NURSING

ALTHOUGH the infant ought, if possible, to be brought up at the breast, it sometimes happens that the mother is utterly unable for the duty, and that a suitable wet nurse is not to be had. In such circumstances no resource is left but to rear the child by the hand, as it is called.

This ought never to be resorted to where it can be avoided. Strong, healthy children may thrive under careful management, although denied the breast; but few delicate children thrive when brought up by the hand. Where the stomach and bowels are irritable, as they almost always are in feeble children, the difficulty is very great. At all times, and under all circumstances, artificial nursing requires the most watchful attention and a great sacrifice of time on the part of the mother, as it is only by the most unremitting management and judicious care that the disadvantages inseparable from it can be successfully overcome. Under favourable circumstances, however, many children grow up in health and strength although reared entirely by the hand.

When a child is to be reared by the hand, we have to determine, first, the *kind* of nourishment fittest to supply the place of the mother's milk; and secondly, the manner in which that nourishment *ought to be given.*

Taking into consideration the imperfectly-developed state of the digestive organs at birth, and the nature of the milk then secreted by the maternal breast, we may safely infer that the most suitable nourishment for the new-born infant will be that which makes the nearest approach to its natural food. For this reason ass's milk deserves the preference over every other kind of food; but when this cannot be obtained, cow's or goat's milk, properly diluted and sweetened, may be substituted. At first, about one-half or more of water

should be added to cow's milk, and a still larger proportion to goat's milk; but after a week or two the proportion may be gradually diminished. As a rule, it is safer to dilute rather freely, provided the supply to the infant is abundant, as the superfluous water readily passes off by the kidneys.

The food of the infant ought to be given at the same temperature as that of the mother's milk (96° or 98° Fahr.). In general, this condition is little attended to by nurses; and yet the temperature might easily be determined, and all possibility of mistake prevented, by means of a thermometer. In preparing the milk and water, it is better to heat the water and pour it upon the milk, than the reverse. Both ingredients should be perfectly fresh, and on no account should any remaining portion be set aside and heated again for a subsequent meal. The infringement of this rule is a frequent cause of severe and troublesome indigestion.

The manner in which food is given is also of importance, and we should follow Nature by supplying it very slowly. For this purpose a glass sucking-bottle, provided with a tube of prepared india-rubber, which passes through the stopper into the bottle, and is fitted at its free extremity with an artificial nipple pierced with one or several *small* holes, ought to be used. Whatever material is used for the nipple, great care must be taken not to have the holes too large, else the milk will flow too fast. An additional precaution against this result will be found in the proper adaptation of the hole in the stopper through which the air passes to replace the abstracted fluid. The utmost cleanliness, too, is indispensable; neither the bottle nor the tube should ever be laid aside after use without being thoroughly washed with hot water, and afterwards laid in cold water. Neglect of this precaution cannot fail to do harm, as the want of perfect cleanliness and sweetness in the food, or in the vessels used in giving it, tends strongly to derange digestion.

The next points for consideration are the *intervals* at which a child brought up by the hand should be fed, and the *quantity* that should be given at a time; and here, again, we cannot do better than take Nature for our guide.

We have already seen that, for two or three weeks after birth, the infant sleeps almost continually; it wakes up now and then for a moment to suck a little, and again goes to sleep. The stomach, being small and unaccustomed to its

functions, can bear only a little food at a time. In accordance with this natural arrangement, similar intervals should be observed in artificial feeding as in ordinary nursing; and the first sign of indifference may be safely relied upon as an indication that the child has had enough. As a rule, six or eight tablespoonfuls will be sufficient at one time for the first two or three weeks; and it should be remembered that rearing by the hand frequently fails solely from injudicious and too frequent feeding. Many nurses, acting under the erroneous notion that liquid food contains little nourishment, administer it often, and thus oppress the stomach and excite vomiting.

If the infant is observed to thrive well and sleep quietly, and its bowels continue in a regular state, the proportion of water added to the milk may be gradually diminished after the first three or four weeks; and about the fourth or fifth month the milk may be given almost undiluted, provided the child is lively and active, and no counter-indication appears. Care should be taken to select the milk of a healthy cow, as a large proportion of the cows confined in cities become the subjects of tubercular disease.

In general, the mode of artificial nursing above described will be found to answer better than any other which can be followed. When successful, it ought to be persevered in, as in natural nursing, till after the appearance of the front teeth, when the same change in diet will be required as if the child had been brought up at the breast.

In some constitutions, cow's milk does not agree when merely diluted and sweetened, but answers perfectly well when a large proportion of water and a small quantity of any well-prepared farinaceous substance are added. When, therefore, after the first month or two, diluted milk does not agree, a small proportion of farinaceous food, such as arrow-root, sago, barley-gruel, and, after these, rusks well boiled, may be added to the milk—the water being first strained off. The *bouillie* commonly used in France as the first food of infants, is made by gently roasting the best wheat-flour in an oven, then boiling it for a considerable time, either in water or in milk and water, and adding sugar to it. When carefully made, not too thick, and free from knots, it is an excellent food, especially when the use of milk excites a tendency to diarrhœa or colicky pains. On changing to the

bouillie, digestion often improves, and the evacuations become healthy and painless.

In some instances, especially when the bowels are sluggish, thin barley-gruel, with or without the addition of weak chicken-tea or beef-tea, answers well. The grand rule ought to be, to follow what seems best suited to the individual constitution. With soft, flabby children, the chicken or beef tea is often most useful; while with thin, active, and irritable infants, the milk and farinaceous diet answers best. But in trying the effect of any alteration, we must not conclude that because no advantage is apparent within a day or two, therefore it will not agree. Often the effects of a partial change of diet show themselves so gradually, that it is only after a week or two, or even longer, that we can decide whether it is beneficial or not.

In some children of a lymphatic constitution and low vitality, it is necessary to begin the use of chicken-tea, mutton-broth perfectly freed from fat, or beef-tea, earlier than usual, as any less animalised food does not agree with them. In general, however, it will be soon enough to have recourse to animal broths some time after the incisor teeth have appeared. But if the milk and farinaceous diet already recommended shall be found to disagree, chicken-tea or weak mutton-broth, to which a little arrowroot, or ground rice, or rusk is added, ought immediately to be tried, provided we make sure beforehand that the indigestion proceeds from the nature, and not from the quantity, of the food previously in use. In general, *excess in quantity, or too frequent feeding, is the real cause*, although the blame is usually laid upon the *quality* of the food.

The great difference between farinaceous food and animal broths is, that the former nourishes without exciting, while the latter are always more or less stimulating. As in infancy the natural tendency is to excitement, milk and farinaceous substances are in ordinary cases most suitable; but occasionally we meet with infants so defective in constitution as to require some stimulus. In such cases, chicken-tea, or even beef-tea, may be used with advantage, provided due caution be exercised to avoid making it too strong or giving too much, and to leave it off the moment any indication of harm is perceived.

In whatever way the infant is brought up, *its treatment*

after being nursed or fed is far from being a matter of indifference. During the first weeks after birth, it will fall asleep immediately after having the breast; and this, as being the order of Nature, ought rather to be encouraged. If, from thoughtless gaiety or activity in the nurse, it be dandled or carried to the window, or otherwise excited, indigestion will be apt to follow, probably accompanied by nervous irritation and colicky pains or bowel-complaint. Even when so much sleep is no longer required, quietude for some time after feeding should be encouraged, as much excitement or motion immediately after meals is unfavourable to digestion, particularly when the child is delicate.

CHAPTER XI

THE NURSERY AND CONDITIONS REQUIRED IN IT

Having considered the peculiarities of the infantile constitution, and its management at birth, during the period of nursing, and at that of weaning, let us now advert to the external circumstances and appliances which experience has shown to be most conducive to the full and regular development of the organism, and the preservation of health in infancy. Some of these, such as the locality in which we live, and the purity of the air we breathe, are so invariable and so decided in their action on the infant constitution, that, with regard to them, it is easy to lay down rules which admit of universal application. Others, again, such as food, clothing, and exercise, vary so much in their effects, according to the age and constitution, etc., that we require to exercise much discrimination in modifying them to suit the circumstances of the case in hand; and it is here that the counsel of the medical attendant comes in with marked advantage. As most of what may be called the general conditions of infant health are more or less directly connected with the *nursery*, it will be convenient to treat of them all under that head.

A well-situated, well-arranged, and well-managed nursery is more important to the health of the infant than most parents are aware of, because it combines within its range various agents which are constantly though silently affecting the constitution. If it be borne in mind that, from the nature of the climate of this country, infants of the middle and higher classes spend, during a great part of the year, twenty of the twenty-four hours within doors, the importance of attending to the purity of the air of the nursery will appear evident.

It may be objected, that, among the poor, and even

among the less wealthy of the middle ranks, necessity and not suitableness often determines the choice of a residence, and the appropriation of the rooms. But admitting this to be the case, it is still an advantage to be acquainted with the local conditions and domestic arrangements most conducive to health. Even among the working classes, there are few indeed who, when once convinced of the existence of an evil, will not or cannot do something to mitigate the disadvantages under which they suffer, and at least choose between a greater and a smaller evil. If they *must* reside within a certain distance from their work, they may nevertheless have it in their power to prefer a better to a worse locality, and a better to a worse house; and hence it is nearly as much for *their* advantage as for that of the rich, that they should be made acquainted with the facts required for the guidance of their judgment.

SITE OF THE HOUSE.—The first and most essential requisite in a nursery is *a constant supply of pure air*. To obtain this, a house should be selected in a dry and rather elevated situation, removed from all sources of contamination, and sheltered from the violence of the wind. When a choice can be made, *the country* should be preferred to the town. The close vicinity of trees or thick shrubbery, of ponds, undrained meadows, or sluggish water-courses, ought to be avoided; for, however ornamental they may be, they are invariably prejudicial to health, not only from the humidity and in many cases the impurities which they diffuse through the air, especially at night, but also from the obstruction which trees present to free ventilation. For the same reason, narrow valleys, and localities shut in by thick woods or overhung by hills, ought never to be chosen as the site of houses or villages.

For those who are obliged to reside in towns, it is of great importance to secure the best situation within their reach. Even in point of economy, not to mention the suffering and anxiety attendant on illness, it will be cheaper to pay more for a suitable house in a dry, well-aired quarter, than a smaller sum for one in a low-lying or crowded part of a town.

In addition to a dry and airy situation, *a good exposure* is well worthy of attention in the selection of a residence for

the young. In a cloudy and uncertain climate like that of Britain, a southern aspect is very desirable, not only because it is warmer and more cheerful, and allows of a more free admission of air, but because the agency of sunlight is scarcely less necessary for animal than for vegetable life.

A situation *with a gay and cheerful prospect* is also desirable, because it is one of those silent but constantly operating agents which certainly, though gradually, influence both the health and character of a child. A dull and confined prospect is a source of dulness and ennui to the naturally active mind of a child, which cannot feel dispirited or gloomy without suffering in its health and its developments.

The *nature of the soil* on which a house stands, and the degree of efficiency of the *drainage*, also exert no small influence on the salubrity of the dwelling. A dry, gravelly soil, or at least one thoroughly drained to some depth, ought always to be preferred. A damp soil necessarily imparts humidity to the lower part of a house, and seriously affects its salubrity. An elevated site is no guarantee of dryness of soil; on some hills moisture abounds as much as in a level marsh.

POSITION OF NURSERY.—In selecting rooms for a nursery, those which have a southern exposure should be preferred, for the reasons already mentioned, when treating of the locality. That a nursery ought also to be *large, airy, easily warmed, and easily ventilated*, will, I think, be readily admitted. In one respect pure air is even more essential to the formation of good blood than proper food. The influence of the air we breathe *never ceases for a single moment of our lives.* By night and by day respiration goes on; and every time we breathe we take in an influence *necessarily* good or bad, according to the quality of the air around us. No wonder, then, that a cause thus incessantly operating should, after a lapse of time, produce great changes on the health. Of all the injurious influences by which childhood is surrounded, none operates more certainly or extensively than the constant breathing of a vitiated air; while, on the contrary, few things have such an immediate and decided effect in renovating the health of a feeble child as change from an impure to a pure atmosphere.

PURITY OF AIR OF NURSERY.—Scrofula, in one or other of its numerous forms or complications, is acknowledged to be in this country one of the most prevalent and fatal diseases which afflict tho earlier years of life. So powerful is the continued breathing of a cold, damp, and vitiated air in producing it, that the most favourable combination of other conditions will often provo insufficient to ward off the evil. Sir James Clark observes that were he to select the two circumstances which moro than any others influence health during the growth of the body, "they would be, the proper adaptation of food to difference of age and constitution, and the constant supply of pure air for respiration."[1] In another place he expresses the conviction that living in impure air is even more influential than defective food in deteriorating health.

I have already noticed the very great mortality which occurred year after year among the infants in the Dublin Lying-in Hospital, till its cause, vitiated air, was at last discovered and obviated, and the mortality consequently reduced from one in every *six* to one in every *twenty* children, within the first nine days, on an average of five years. In 1859, the mortality was only one in *forty*.

It may be said that, to prove the effects of habitually breathing vitiated air, I have referred only to an extreme case; but it is by well-marked cases that the nature and extent of the evil can be most clearly demonstrated. If breathing a very vitiated air so deteriorates the blood as to cut short life by convulsions within nine days, as was the case with every *sixth* infant in the Dublin Hospital, the less vitiated atmosphere of an ill-ventilated nursery will impair the quality of the blood in precisely the same way, and with equal certainty, but only less rapidly—the health will bo more slowly undermined, and a foundation be laid for diseases which may not prove fatal till after the lapse of years.

It is obvious, then, that rooms appropriated for nurseries should be in the higher part of tho house, large, cheerful, not overcrowded with furniture, and provided with the means of ample ventilation without exposing their inmates to currents of cold or damp air. If the size of the house will admit of it, the day-nursery should be entirely separate

[1] *On Consumption and Scrofula*, p. 233.

from the sleeping-room. If there is only one room, it is extremely difficult to secure adequate ventilation, because, even in summer, the draught from open windows is attended with risk, and, during at least two-thirds of the year in this country, the cold and damp atmosphere of our climate renders it unsafe to keep them open long enough, and sufficiently often. But the case is different when there is a day-room in addition.

Closely-drawn curtains, and other appliances by which a free supply of air is systematically cut off from the young, are highly prejudicial.

A very common source of impure air is the burning of gas. Experience shows that plants and birds speedily die when kept in a room where gas is habitually used; and there can be no doubt that children, and even adults, especially those of delicate constitution, are injuriously affected by breathing air mixed with the products of its combustion, among which are commonly certain compounds of sulphur and other noxious substances. Indeed, there is reason to think that the extensive use of gas is the unsuspected cause of much ill-health. It is therefore of great importance that the use of this light should be forbidden in nurseries, or permitted only when efficient means are employed to carry off the products of combustion. While counselling that the nursery should be in the higher part of the house, we must also direct attention to the fact that impure air finds its way through ceilings and floors from lower to upper rooms. On this account the upper houses in common stairs are apt to be unhealthy; and even in the best houses it will be prudent to avoid placing the nursery immediately over rooms in which gas is largely burned.

However suitable in size and situation the nursery may be, adequate *ventilation—i.e.* a *frequent*, and, still better, a *continuous renewal* of the air contained in it—is indispensable to health. Caution must, however, be exercised in effecting this, especially in winter. Before the windows and doors are thrown open for a thorough purification in the morning, the children should be removed into another room; and at all times they should be kept out of the way of draughts from open windows or doors, dust from sweeping, and damp from washing the floors. It is for this reason that two rooms are so desirable for the nursery.

When the weather is cold and the air moist, the windows ought never to be thrown open till the children are removed and the sun has been for some time above the horizon. The bedclothes should be turned down as soon as the child is taken up, and should be exposed to the air for several hours, that they may be entirely freed from the effluvia accumulated during the night.

TEMPERATURE OF THE NURSERY.—Pure air being provided for, the next point demanding attention is the due regulation of the temperature of the nursery. This also is of much importance, because, like the quality of the air, it is in almost continual operation. The atmosphere of the nursery ought, during the first few weeks, to be kept comfortably and equably warm, and never allowed to fall below 65°. For the first few days the temperature may be raised with propriety to 70°, if ventilation receive due attention.

In this country, open fireplaces are in general use in nurseries, and they have the advantage of ensuring a certain degree of ventilation; but they are also the causes of many and serious inconveniences. By the constant rush of air to the fire, cold draughts from the doors and windows are necessarily produced, and it is often almost impossible to prevent mischief from the chills they occasion. A large screen placed behind the door, to intercept the current of cold air and diffuse it through the room, affords some protection. In winter this is especially necessary, as every time the door is opened a blast of cold air enters, quite sufficient to cause illness in a delicate child directly exposed to it. Cross draughts of air also ought to be guarded against by some similar contrivance.

In nurseries the fireplace should be fenced with an iron or wire grating, as the surest protection against accidents; and care should be taken at all times to avoid exposing the infant to the glare and heat of a bright fire, and to prevent the older children from habitually placing themselves too near it.

While due care is taken to protect the infant from cold, every approach to overheating must be no less scrupulously avoided. When the temperature of the nursery is habitually too high, a degree of general relaxation, and of excitability of the nervous system, is induced, which greatly favours

the development of the irritative and convulsive diseases to which infants are naturally liable, and which are so often the causes of premature death. Another important consideration is the additional risk incurred by the transition to the cold external air, when the child is taken out for exercise.

As the system always endeavours to accommodate itself to the circumstances in which we live, it is clear that, if a child spend twenty-three hours out of every twenty-four in an over-heated atmosphere, its own power of generating heat will be impaired, so that when it is suddenly exposed, during the twenty-fourth hour, to the colder open air, it will be more liable to suffer from the transition than if it had previously been habituated to a mild temperature.

CHAPTER XII

MANAGEMENT OF THE INFANT DURING TEETHING

During the earlier months of infancy, the child is intended to draw its whole nourishment from its mother's breast; the power of suction alone is required, and for this the action of the tongue, lips, and cheeks is amply sufficient. Accordingly, for some time after birth, the jaws are short, shallow, and toothless; and the muscles which put them in motion are small, feeble, and delicate in structure.

But in the course of a few months, as the infant slowly advances towards a state of development in which a more consistent and nutritive food becomes necessary for its support, a corresponding change is observed to take place in the organism. The bones of the face gradually expand; the jaws increase in length, depth, and firmness of structure; the gums become more elevated and resisting on their upper edge; the cavity of the mouth enlarges; the muscles which move the jaw increase in size and power; and, in proportion to these changes, the infant manifests an increased tendency to carry to its mouth every object it can lay hold of, thus evidently contributing to develop still further the bones and muscles concerned in mastication.

About the seventh month, however, a still more remarkable change begins, which does not terminate till after the end of the second year. This is the successive cutting of the first set of teeth.

Teething, being a natural process, is not necessarily attended with danger, and under proper management a healthy child generally passes through it without much suffering. But, in delicate or mismanaged children, teething is often a cause of danger and of much anxiety to the parents.

The condition of the bodily organs will, as a rule, be

found exactly adapted at every period of life to the wants of the individual. From the infant at the breast, for example, teeth are withheld, because they would be not only useless, but an encumbrance, by interfering with its sucking. At a later period, however, when the infant's natural food is no longer fluid, but firm and consistent, teeth are given; because without them such food could not be broken down, or formed into a soft mass with the saliva, to fit it for being easily swallowed and easily digested. So, also, when, from weakness of constitution or the effects of disease, the development of the system goes on with unusual slowness, and solid food is not so soon required, the appearance of the teeth is also delayed; thus affording another proof that weaning, and the change of diet connected with it, ought to be regulated by the progress of the organism, and not merely by the number of months which have elapsed since the child was born.

The *temporary or milk teeth*—twenty in number—consist of eight *front*, *incisor*, or *cutting* teeth, four *canine* or *eye* teeth, and eight *molar* teeth or *grinders*. They begin to appear about the sixth or seventh month, and are generally all developed at the age of from two to two and a half years. About the seventh year these temporary teeth begin to fall out, and gradually they are succeeded by the permanent teeth, the last four of which, because they sometimes do not appear before twenty or twenty-five years of age, are called the *wisdom teeth*.

The *permanent teeth*—thirty-two in number, sixteen in each jaw—are divided into eight *front* or *cutting* teeth, four *canine* or *eye* teeth, and twenty *molar* teeth or *grinders*.

Although even the first teeth are not cut earlier than the sixth or seventh month, the rudiments of both sets exist in the jaw long before birth. As it would be out of place to trace their progress in a work like this, I shall merely state that the ossification of many of the milk teeth is far advanced even at birth, and that a certain degree of regularity is observed in the order of their appearance. The middle two incisors of the lower jaw are generally the first cut, and are commonly soon followed by those of the upper jaw. After an uncertain interval, these are succeeded by the *lateral* incisors in both jaws. After another interval, which brings the child to about the fifteenth or sixteenth month, sometimes

the anterior molar, and sometimes the canine teeth, come next in order; and between the twentieth and thirtieth months the posterior molar generally also appear, and thus complete the whole of the milk teeth.

Generally speaking, teething has two distinct stages. In the first, the capsule of the tooth seems to swell and press upon the neighbouring parts; while, in the second stage, the tooth rises upwards, presses against, and then passes through the gum. The second process does not always follow the other immediately; on the contrary, a considerable interval may elapse between them, during which all goes on quietly. Active symptoms of teething are thus often experienced without any teeth making their appearance; but, perhaps a few days, or a week or two later, the work is resumed, or, as now and then happens, the tooth has appeared without the system having undergone any additional disturbance.

The incisor are generally more easily cut than the eye teeth. The appearance of the latter, indeed, is often preceded by much constitutional disturbance, though their pointed form seems to indicate a facility in making their way.

Dentition, as I have said, being a natural process, is not necessarily a source of danger. But a slighter cause is apt to give rise to disease during the period of teething than at other times; and when disease does occur, it is aggravated and rendered more dangerous. The increased irritability is indeed the real source of the constitutional disturbance so often attendant on teething; and, consequently, the best method of carrying the child in safety through that troublesome and sometimes perilous process, is the adoption, from the day of its birth onwards, of *a proper system of general management.* Daily experience shows that, while the symptoms of teething are often severe in children much confined to the house and subjected to irregularities of diet, they are generally mild in well-constituted children who have never been overfed, and whose exercise in the open air and general management have been conducted in accordance with the dictates of physiology.

Much as I have already insisted on the importance of *pure air* as a condition of health, I cannot refrain from again urging it on mothers as one of the surest preservatives against the dangers of dentition. Nothing tends so directly

as the constant breathing of pure air to counteract and subdue that nervous irritability which is the characteristic of infancy, and the source of so many of its diseases. If a child spends some hours daily in the open air, occupies a large and thoroughly-ventilated apartment within doors, and is not overfed, it rarely suffers much from teething. Whereas when it is taken out to exercise only at distant and irregular intervals, and is cooped up in an over-warm or ill-ventilated nursery, it is placed in the situation of all others the most likely to render dentition a process of difficulty and danger.

But although the infant can scarcely be too much in the open air in temperate or fine weather, and when it is properly protected, the unusual susceptibility of the system during teething demands that great care be taken *not to expose it when the weather is harsh and cold.* If, from an ill-directed desire to strengthen the child, it be rashly exposed, during teething, to cold or damp, or to partial currents of air, inflammatory disease in the windpipe or chest may easily be excited. The same result may ensue if the clothing be insufficient to keep up the natural warmth of the surface and extremities.

The *tepid* bath is the only other part of the *general* or preservative treatment which it is necessary to notice here. From its power of allaying nervous excitement and promoting sleep, it is often a valuable resource before and during the irritation of teething; and it may then be safely continued for a longer time than when used merely for the purposes of cleanliness. Gentle and repeated friction over the surface of the body also exerts a salutary and sedative influence on the nervous system, and should not be neglected.

A light cooling diet should be strictly observed during the acute stage of dentition, and even the ordinary food be considerably diluted. For the same reason, if teething commences before weaning takes place, the mother or nurse should adopt a mild and cooling diet, and carefully avoid all heavy and indigestible articles. The mother, also, should be doubly careful to avoid every source of disturbance to her own health, such as vivid emotional excitement, fatigue, and anxiety, as these directly affect the state of the child.

During the active stage of teething, there is a considerable tendency to *congestion of the brain*, which often becomes a

source of danger from the facility with which convulsions may then be induced, or mere irritation be converted into inflammation of the brain. Hence the propriety of keeping the head cool, and avoiding every kind of excitement. Even too much anxiety to amuse the child may become a cause of morbid irritation. A quiet, soothing, and cheerful manner is by far the most suitable, and tends much to comfort the child. The unusual flow of saliva from the mouth acts beneficially, and ought on no account to be checked. The bowel-complaint, also, that frequently accompanies teething is useful, and ought not to excite anxiety, unless it is excessive and threatens danger as a distinct disease. When, from rash exposure or improper interference, the flow of saliva or the bowel-complaint is arrested, convulsions and other serious forms of disease are of frequent occurrence.

It is very judiciously remarked by Dr. Evanson, that, while we abstain from exciting alarm about the general disorder attendant on teething, we must, however, be watchful not to allow dangerous disease to advance unchecked, in the belief that the symptoms arise merely from dentition, and will cease with the cutting of the teeth. Both errors are sometimes committed; and the only way to avoid them is, never to allow our judgment to be carried away by undue reliance on the universal truth of a general proposition. We ought strictly to consider each case on its own merits, and endeavour to distinguish between the symptoms produced solely by teething, and those arising from co-existing and probably more serious disease.

When the child suffers much from the swollen and inflamed state of the gums, or when any uncertainty or complication of unusual symptoms arises, the duty of the mother is obviously not to trust to her own judgment or to chance, but at once to call in professional aid, without waiting till active mischief has gone so far as to endanger life. When, however, the infant is uneasy merely, and no serious pain is complained of, she may often administer relief in the earlier stage by rubbing the gum gently with the finger. When the gum is much inflamed, as it is in the later stage, pressure will be hurtful; but the time at which rubbing becomes agreeable can always be detected by observing the behaviour of the child. If there is not much tenderness, the use of a piece of smooth coral promotes the passage of the

tooth; but a crust of bread answers better when the gum is inflamed, and at the same time it relieves the irritation by increasing the flow of saliva.

When there is much pain and redness of the gum, and the constitutional disturbance is considerable, relief may be speedily obtained by dividing the gum over the tooth with a lancet, and allowing it to bleed freely. Even in the first stage of dentition this may be done with propriety, although there is no expectation of the tooth immediately following. In the second stage, when the tooth is about to appear, incision of the gum is often imperatively called for, as the only means of putting an end to severe suffering and averting danger. Even then, however, the tooth may not appear for several days.

The *second dentition* is seldom attended with constitutional disturbance; but the progress of the teeth should be carefully watched, to see that they come in their proper places and advance in the right direction, and also that they are not so crowded as to press injuriously on each other, or endanger their permanent regularity. Not only the form and expression of the mouth, but the beauty and preservation of the teeth themselves, depend greatly on the watchful attention paid to them, and on their being judiciously managed, during the progress of the second dentition.

The importance of *preserving the teeth* should be impressed on children from an early age; they should be taught to clean them carefully with a proper brush night and morning, and if after every meal, still better.

CHAPTER XIII

MANAGEMENT OF THE CHILD FROM WEANING TO THE END OF THE SECOND YEAR

THE period of infancy may be divided into two distinct portions—the first extending from birth to the time of weaning, and the second from weaning to the full development of the temporary teeth. In the great majority of cases, weaning takes place between the ninth and twelfth months, and the cutting of the first set of teeth is completed about the twenty-fourth month, or soon afterwards. In a general way, therefore, the two periods may be accurately enough spoken of as *the first and the second years of infancy.*

The subjects discussed in the preceding chapters refer chiefly to the first of these divisions; but the second also demands no small share of our attention. During this later stage the rate of mortality is indeed greatly reduced from what it was during the first year; but it still so far exceeds the average of any other period of life, as to force the conviction upon every reflecting mind that there must be, in the constitution or external circumstances of the child, during the evolution of the milk teeth, some peculiarity which renders it unusually susceptible of disease. In the third and subsequent years, the mortality declines so rapidly as to prove that some of its causes must have been peculiar to infancy. The object of the present chapter is to inquire what those causes are, and how they may be most successfully counteracted.

CAUSES OF MORTALITY DURING THE SECOND YEAR.—Many of the perils of the first year have already been shown to arise partly from the very delicate state of the organism, and partly from defects of management. The dangers incidental to the second year admit of a similar classification. Growth

continues to be rapid, and there is still the same predominance of the nervous and circulating systems which marks the earlier period. The functions principally concerned in nutrition and growth are consequently kept in that state of high activity which any accidental irritation may convert into disease. The important process of teething also goes on during the whole of the second year, and, from the excitability which accompanies it, considerably increases the risk from exposure to cold, errors of diet, etc. To the infant, moreover, everything is new and exciting. At the commencement of the second year, the senses are scarcely more than beginning to convey distinct and durable impressions to the mind. The mind itself is becoming conscious of new feelings and desires, and takes pleasure in the examination of surrounding objects. The will now assumes a more definite expression, and with increasing vigour and precision directs the bodily movements in the fulfilment of its wishes. By and by the power of speech and social intercourse becomes an additional source of interest and constantly-recurring excitement.

During the second year, the state of the constitution differs only in degree from what it was toward the end of the first; and the same principles by which our treatment was regulated at the commencement of dentition continue applicable, with only such slight and obvious modifications as the change of circumstances may require. I shall therefore content myself at present with again urging the important practical fact, that the adoption, from the very first, of a mode of management in accordance with the nature and wants of. the infantile constitution, is by far the most effectual way to diminish the dangers of teething, and of all other infantile diseases.

DIET.—A large proportion of the diseases which destroy life in early infancy are more or less directly connected with the state of the digestive organs, and one of their principal sources is unquestionably *errors in diet.* On this point, perhaps more than on any other, parents are apt to be misled —partly by their feelings, and partly by their ignorance.

From a natural wish to strengthen the child, mothers are prone to give too much or unsuitable food, and to give it too frequently. If an infant is allowed to eat too fast, it is

almost certain to eat too much; and, on the other hand, if it is not duly exercised or amused, it will desire food too often—not because it really stands in need of nourishment, but because it dislikes to be idle, and must be doing something. The common practice of soothing children by giving them cake or sweetmeats is not less pernicious to health than injurious to their moral welfare; and the child cannot be too early accustomed to abstain entirely from eating during the intervals between meals. The stomach, like other organs, requires a period of repose to regain its tone after being engaged in digestion; and if the child be allowed to eat at its own will and pleasure, indigestion will follow, and lead to general disorder of health.

During the second year of life, as at the earlier stage, mischief is often done through over-anxiety to strengthen the child by strong food and the use of stimulants. This is a great error. It is true that a healthy child who has been weakened by accidental starvation may be rapidly strengthened in this way; but in debility arising either from imperfect digestion or assimilation, or from an irritable nervous constitution, the milder the food, the more nourishment it will afford; and the stronger and more stimulating it is, the less likely will it be to restore the child to health.

It is certain that, as a general fact, much more injury is done by giving animal food too soon than by delaying it too long. After the incisor and the anterior molar teeth have appeared, the child may be gradually accustomed to more solid food. At first chicken-broth, or weak mutton-broth, freed from fat, may be given in small quantity along with farinaceous food, and afterwards a little soft-boiled egg, or light pudding, as an intermediate step towards solid meat.

A small quantity of any light and well-cooked vegetable will also be allowable after the appearance of the teeth. Cauliflower, carrot, or stewed fruit will be highly relished and easily digested, provided the quantity be not too large.

When too rich food is given at an early age with the view of strengthening a delicate constitution, the child generally becomes thin, excitable, and feverish; and its health improves only when a change is made to milder nourishment. It is not the quality or quantity of food taken into the stomach which indicates the amount of support which it will afford. *Only that portion of it which is digested and assimilated*

proves useful; and hence, the surest way to impart strength is to give the kind of food that abounds most in those elements in which the system is deficient, and to administer it in such quantity as is best suited to the state of the constitution.

In childhood, the predominance of the nervous and vascular systems renders the common use of fermented liquors, tea, coffee, and other stimulants, decidedly injurious, and it is only in cases of low vitality or disease (of which none but a medical man can judge) that any advantage is to be derived from their use.

Before taking leave of the subject of infant diet, I would again urge the necessity of paying much attention to *regularity* in the time of meals. There is a natural tendency in all the operations of the animal economy to the observance of fixed periods, which greatly facilitates the formation of habits of order and regularity, more especially in early life, and which, under the guidance of good sense, may be turned to excellent account even in the first months of infancy. When regularity and method have once been introduced, it is difficult to say whether the child or the parent derives the greatest advantage from them. If they promote in a high degree the health and comfort of the child, they also relieve the parent from a thraldom which is as severe as it is incessant; for nothing can exceed the slavish subjection in which a mother is held when her child is once assured that by crying lustily it may procure any indulgence or amount of attention it pleases. Whereas, when an infant has discovered that it is not to be the dictator, that its appetite is to be indulged only at the right time, and that, while every kind and proper concession will be cheerfully made, nothing that is really wrong will be conceded to mere importunity, it instinctively yields the point, and enjoys in consequence a far happier life than if it were allowed to gratify, hurtfully, its every whim.

The proper regulation of the *quantity* of the food is also of much practical importance. From ill-judged kindness, it is not unusual to coax a child to eat more than it desires. This is, I believe, a frequent source of the indigestion and bowel-complaints so prevalent and fatal in early infancy. While avoiding excess, however, we must be careful not

to go to the other extreme, and give an insufficient allowance of nourishing food—an error sometimes fallen into from a wish to render the child abstemious and hardy in after-life. The true way to fortify the constitution against future hardships and unavoidable privations, is to secure in infancy and youth every advantage which can be obtained by a well-conducted general regimen, and *a regular and ample, but not excessive, supply* of wholesome and nourishing food. The mistake of administering inadequately to the wants of childhood is not unknown even among intelligent people, although much less frequent than the contrary error.

But while regularity and quantity are thus attended to in arranging the meals of the young, it ought also to be kept in mind that some *variety* is as advantageous in early as in later life, and that to continue day after day the same food, prepared in the very same way, tends to weaken the stomach. With a little ingenuity, some slight variation either in the substance or the mode of preparation of a meal may easily be made, which will give a wholesome stimulus to digestion. If, for instance, farinaceous food and milk are at the time the proper kind of diet, it is easy to make a little variety by occasionally substituting arrowroot, soft-boiled rice, sago, bread-crumb, etc., for each other; or, when soup is allowed, by alternating chicken-broth, mutton-broth, beef-tea, etc. A similar plan may be followed with eggs, meat, and vegetables. A change managed in this way, from one article to another of a similar nature, is both agreeable and healthful.

Many parents are in the habit of having their children brought to table at the end of their own dinner, and of giving them wine, fruit, and confections. Nothing but mischief can follow from this indulgence. The practice ought to be scrupulously avoided, and we ought never to bring a child into a place where we are partaking of any delicacy, unless we intend also to gratify its desires. The mere sight of food or drink is an infallible stimulant to the infant appetite, just as light is to the eye, or a suffering object to the feeling of compassion.

CLEANLINESS.—Cleanliness should hold the same prominent place in the treatment of the second as it did in that of

the first year of infancy. But in accordance with the increased development and greater powers of reaction of the organism, the temperature of the water used for washing the child in the morning should, during summer, be gradually reduced from 80° to 75°, or even lower, in proportion as the increasing energies of the child render it safe and advantageous to do so. When the weather is warm, and the child vigorous and active, water at the temperature of the room may be safely used. During winter, however, or when the child is delicate and does not seem to rally easily from the shock, we must be careful not to lower the temperature too much.

When, as is generally the case, the morning ablution is merely for the sake of cleanliness, the immersion should be continued only long enough to have the child thoroughly washed, and well but gently rubbed while in the water with the hand or a soft sponge, and it should be quickly and thoroughly dried.

It is to the influence of the bath in equalising the circulation through all parts of the body, that the experienced Hufeland ascribes the great advantages derived from its judicious and systematic use in infancy, in preventing undue congestion or irritation in any one organ or set of organs, such as the lungs, the heart, the brain, the stomach, or the bowels. For the same reason, he considers it as a most valuable auxiliary in the treatment of disease. At present, almost all our remedial agents, whatever the organs upon which they are specially intended to act, are applied directly to the stomach and bowels, so that, *any internal irritation already existing is often increased by the very remedy administered for its removal.* From this inconvenience the bath is entirely free.

DRESS.—Dress is another subject for serious consideration in the management of infancy, as it acts upon the skin and the general system either for good or for evil, according to the judgment with which it is regulated. In early life the skin is the seat of free and often copious perspiration, which always soils it more or less, so that a frequent change of the dress is as essential to cleanliness and health as the use of ablution and bathing. As the functions of the skin are easily repressed by anything approaching to a chill, the

dress ought to be such as to afford adequate protection. In winter, soft flannel should be worn next the skin, if the child be at all delicate or show any difficulty in maintaining its warmth. In summer, and in the case of robust children, it is less necessary. The rule to be followed is, to use the material which ensures sufficient warmth without oppressing. In many constitutions, soft warm cotton is preferable to flannel; but when the skin appears dry, rough, and of a bluish-white colour, this is a clear indication of its insufficient action, and flannel should at once be substituted.

Except in the first months of infancy and in winter, when ample protection against cold is certainly required, feather-beds and very soft pillows ought to give place to well-made hair mattresses, sufficiently firm to afford a certain amount of resistance without allowing the body to sink into them; or if feather-beds are used, they should be so well filled as to have a moderate degree of hardness. A soft feather-bed is equivalent to an excess of warm clothing on the side of the body immersed in it, and its bad effects are of the same nature, only increased by the application being partial instead of general. Some people imagine the warmth to be due only to the coverings above them, and in consequence are apt to over-heat one side of the body, while the other may be suffering from cold.

The employment of insufficient clothing during the day, along with the use of soft, warm feather-beds, pillows, and blankets during the night, is one of the most hurtful forms in which the inconsistency of parents is displayed. Many of the unhappy children whose cold blue legs and anxious looks used to excite public compassion during winter, in our streets and squares, lay during the night pillowed on down, sunk in feather-beds, and covered with the warmest and softest blankets; and the consequences were often deplorable. In health, the sleep of childhood is too prompt, sound, and refreshing, to require such appliances to solicit its approach; and their use serves only to relax the skin, and increase its susceptibility to cold and disease. In this country, a considerable improvement in the dress of children has taken place. Long warm worsted gaiters now envelop knees and limbs formerly blue and pinched from exposure to the wintry blast.

At all times, the dress of the young should be sufficient to protect them from every *abiding* sensation of cold or chill, however slight, but not sufficient to over-heat them or render exercise unpleasant. It should be light in material, and fit easily, so as to admit of the utmost freedom of motion and attitude. It should cover completely, but not tightly, the upper part of the chest and arms, especially in winter. Many delicate children suffer severely from the common custom of leaving the chest and shoulders almost uncovered when within doors, and heaping on warm clothing when going out.

But while recommending adequate protection by clothing against an *abiding feeling of cold*, I am very far from advising that children should be brought up under a regulated uniformity of temperature. On the contrary, I believe too great uniformity to be almost as injurious to healthy children, and indeed to adults too, as sudden exposure to extremes of heat and cold. Under constant uniformity, whether of temperature, diet, employment, or exercise, the system loses the cheerful spring which is the surest sign and best blessing of sound health, and becomes a prey to slight influences which would otherwise have been resisted, not only with ease, but with delight.

EXERCISE AND PURE AIR.—Sufficient exercise and pure air are indispensable conditions of health, and, as already mentioned, both greatly conduce to the safety of the child during the irritation of teething. In fine weather, the child cannot be too much in the open air, exercising his muscles in his own way, and at his own pleasure. During the summer, in perfectly dry weather, he may be allowed to crawl on the grass, or on a cloth spread over it. By self-exercise of this description, he will not only amuse himself better, but develop his muscular strength, and acquire the power of standing and walking sooner and more securely than if taught exclusively by another. Premature endeavours to walk by the aid of an attendant ought to be strictly forbidden. When the child feels himself able, he will lose no time in exercising his powers; and it is better that he should gain strength by crawling for a week or two longer on all-fours, than that his limbs or spine should become bent by premature exertion. Parents and nurses often act

very injudiciously in exciting children to walk before their limbs are sufficiently strong. It should be borne in mind that the bones of the infant contain a much larger proportion of animal matter than those of adults, and are consequently soft and yielding.

But while inculcating the importance of abundant exposure to the open air as a means of fortifying the constitution of the young, I would again caution parents against sending their children out inadequately clothed, or when really unseasonable weather or existing indisposition indicates the propriety of keeping them at home. As long as a child retains its natural warmth, either from exercise or clothing, it may be regarded as safe under almost any exposure; but if, from deficient clothing, it becomes chilled, or even is kept long cool, it will almost certainly suffer.

SLEEP.—The due regulation of sleep is another important consideration in early infancy, and, as such, has already been discussed at some length. But it remains for me to point out the propriety of weaning the child from sleep during the day, as soon as he is sufficiently developed and vigorous to bear the change. This generally happens at from two to three years of age; but in the case of feeble children, and of such as are nervous and excitable, the mid-day sleep requires to be continued, and even encouraged, much longer. In winter, the period of sleep may be so arranged as to admit of the child being taken out in the best part of the day.

As a rule, the infant should not be left in bed after it is thoroughly awake. It is far better to have him taken up and dressed, even if it should be afterwards necessary to lay him down for a time on the top of the bed. In infancy as well as maturity, it is relaxing and enervating to lie in bed when nature no longer requires the refreshment of sleep; and the mother should be on her guard against encouraging such a habit in her child, merely to suit her own temporary convenience. The sleep of a healthy child is so sound and refreshing, that on awakening he almost demands activity as a necessary of life; and the shorter the time spent in bed after awakening, the better for health and comfort.

As connected with this part of the subject, I may here advert to the common practice of two or more children sleeping in one bed. For many reasons it is desirable that this should be avoided. It is far more conducive to health that children should sleep in separate beds, a little apart from each other. By this means every child will breathe a purer air than if they are placed together. Another obvious advantage is the smaller probability of partial exposure to cold from the bedclothes being inadvertently pulled over to one side.

There is another custom, which cannot be too soon given up after the first few weeks are over. I allude to the practice of hushing the infant to sleep in the nurse's arms, or on her knee, before it is placed in its cradle or bed. When a child is fretful or excited, it may be put to sleep perhaps a few minutes sooner by this practice; but the advantage is purchased at a much greater cost than it is worth, and is often the first step to the loss, not only of its own, but of its parent's health and comfort. Once let the habit be established that the child is not to go to sleep except on its mother's knee, and every time it awakes in the night or in the day it will compel her to get up, no matter at what cost, and hush it to sleep again; and perhaps in the very act of laying it in its cradle it once more awakes, and the whole process of crying and hushing must be gone over again, and a similar risk once more incurred. The infant is thus converted into an uneasy and restless tyrant, and the mother or nurse into its almost sleepless slave, and all for no advantage whatever, even to itself. For, after all, the sleep so induced is not so sound and refreshing as that which soon ensues when a child is laid quietly in its bed and resigned to the influence of its natural wants.

Injurious, however, as this practice unquestionably is, it is one of the most difficult for an over-anxious mother to discontinue. When once accustomed to it, the child necessarily remains sleepless and cries, for a short time, when it is first broken off; and few mothers are able to resist the cry of apparent distress thus sounded in their ears, even when convinced that nothing serious is the matter. Yet the change is much more easily accomplished than many would expect.

MANAGEMENT DURING ILLNESS.—The occurrence of measles, hooping-cough, and other infantile diseases, is a source of great mortality during the second year. I shall say nothing here as to the medical treatment of these diseases, because that ought never to be conducted by the parent or nurse. I refer to it merely to say that the previous good or bad management of the child has an important influence on the progress and result of all infantile diseases. Even in the worst epidemics, a large proportion of the children are restored to health; and experience proves that the recoveries occur chiefly among those who are, and have been, rationally treated, and favourably situated as to external circumstances.

Domestic mismanagement during illness is a very frequent cause of death in infancy. It takes a variety of forms, according to the dispositions and circumstances of the parents. Many mothers and nurses are continually administering medicines of one kind or another, and thus deranging the healthy operations of the system. Instead of looking on the animal economy as an organism constituted to work well under certain conditions, and having, in virtue of that constitution, a natural tendency to rectify temporary disorders if the requisite conditions of restorative action be fulfilled, they seem to regard it as a machine acting upon no fixed principles, and requiring now and then to be driven by some foreign impulse in the shape of medicine.

Viewing disease as something lodged in the system, the uninformed and anxious mother hastens to expel it, and in so doing often perils the life of her child. When the truth comes to be more generally known, that disease is but *an aberration from the natural state of an organ or function*, proceeding from some active cause, and not to be remedied till the diseased organ is placed under the conditions essential to its healthy action, then will more attention be paid to seeking the co-operation of Nature in our curative treatment, and much less mischief be done by rash attempts to expel disease by force. The true physician is "the *servant and interpreter* of Nature," not her ruler or opponent; and so ought the mother to be. It is my conviction, that a child cannot encounter many greater dangers than that of being subjected to the vigorous discipline of a medicine-giving mother or nurse.

Even when the child is under the care of a professional

adviser, it is by no means safe from the risk arising from the giving of heterogeneous medicines. Whenever a child is seriously ill, there is not only great anxiety on the part of the mother, but much sympathy on the part of friends and neighbours, each of whom has her own story of what was done with such another child in the same situation, and the great good obtained from such-and-such medicines. In vain the mother may urge that the physician has seen the patient, and already prescribed a different course. Entreaties are poured in, with an earnestness proportioned to the danger, just *to try* the vaunted remedy, *without telling the doctor*, or interrupting the use of his medicines. Anxious for the relief of her child, the mother often yields, before her better judgment can come into play to prevent her, and in a short time the child suffers from this abuse of perhaps incompatible or dangerous remedies. If the consequences are fatal, the self-satisfaction is scarcely impaired, because supported by a false notion that *everything has been done which could be done* to avert the catastrophe. It would be a great mistake to suppose that such conduct is to be met with only among the uneducated poor. Even the middle and higher classes are as yet so little instructed on the subject of the human constitution, that although, from greater general intelligence, they act more habitually under the direction of a qualified professional adviser, still, even among them, not a few instances occur in which the child falls a sacrifice to the multiplicity of ignorant counsellors and excessive use of drugs.

The habit of concealment from the family physician, into which the following of "everybody's" advice is so apt to lead, is itself an evil of the first magnitude. By inducing him to ascribe effects to wrong causes, it tends to mislead his judgment, and may thus render him unwittingly an instrument of mischief. The maternal anxiety which lies at the root of the error is highly natural, and every sensible practitioner will make allowance for its impulses, even where they are ill-directed, and annoying to himself. But the fair and proper way for the mother is, not to act upon the suggestions of others without the knowledge of the medical attendant, but to state simply, and in an honest spirit, that certain suggestions have been made, and inquire whether they meet with his approbation or not. If they do,

then the measures recommended will be adapted by him to the necessities and peculiarities of the case, and the different parts of the treatment be carried on consistently and safely. If, on the contrary, they do not, he will have an opportunity of assigning a reason for his disapproval, and of pointing out the greater fitness of the means already employed.

So far from blaming the parents for calling the attention of the physician to any reasonable suggestion made by another, I acknowledge that even the most experienced may occasionally derive advantage from a hint thrown out by a casual observer. Something may escape notice during a short professional visit, which may be easily remarked at another time by a less skilful person, and by which some modification of treatment, not previously thought of, may be rendered suitable. In like manner, useful practical suggestions may be thrown out, by which any medical man may profit without reproach to his skill. All, therefore, that I contend for is, that the physician in charge of the child should be consulted before remedies unauthorised by him are tried; and that, where any are given against his advice, he should not be kept in ignorance of the fact, but be left to decide whether to insist on his own opinion being followed, or to give up his charge of the patient.

When a child becomes seriously indisposed, it should, if practicable, be at once removed to a quiet well-aired room, away from the noise and bustle of the nursery. By this means the other children will be more likely to escape if the disease should prove to be infectious, and the patient will be benefited by the change. The natural excitability of the infant constitution being always held in view, it is obvious that the sickroom should be kept quiet, and nothing be allowed to lessen the purity of its air. No one should be allowed to remain in it except the child and its nurse. Every unnecessary visitor serves only to vitiate the atmosphere and disturb the patient. Pure fresh air, always important, becomes doubly so during disease: hence, the close over-heated air which some parents insist upon from a morbid apprehension of cold, is often productive of worse effects, especially in the febrile complaints of childhood, than the evil which it is sought to prevent. The same remark is applicable to closely-drawn curtains, and the enervating quantity of bedclothes sometimes heaped on the young.

But it is in the mismanagement of diet during the diseases of infancy that the physician meets with the greatest obstacles to recovery, and in regard to which he requires to be constantly on his guard, and to make sure that his wishes are understood and complied with. Almost all the disorders of infancy, as might be inferred from the predominance of the nervous and vascular systems at that age, are attended with more or less of fever; as a rule, therefore, a mild and moderate diet is required, even when the strength is much reduced. Stimulating or highly nutritive food increases debility by aggravating the febrile action; but, looking to the debility alone, many persons think they cannot give too strong or too much nourishment. This is the source of no little mischief, and sometimes of the inefficacy of the best-devised and most suitable treatment.

Another source of infant mortality is delay in sending for professional assistance, in the hope that some domestic remedy will afford relief or effect a cure. Some of the most serious diseases of infancy begin in a very insidious manner, and can be effectually checked only at their outset. When, therefore, a child complains without any obvious cause, the sooner advice is sent for the better. If this plan were generally followed, many children would be saved who are now lost, and much professional attendance be avoided which is now incurred to little purpose.

There are one or two other points which I would here earnestly impress upon mothers. The first is—when the child is really ill, to send for the physician *as early in the day as possible*, instead of waiting, as is so often done through a spirit of procrastination, till the solitude of night works upon the mother's fears, and then sending in haste at a very late hour, when the difficulty of procuring the needful remedies is greatly increased, and the whole household is thrown into commotion. Timeously warned, the physician would make his visit at a seasonable hour, not only with more benefit to the patient, but at far less expense of time, trouble, and anxiety to all concerned; whereas at night he is probably exhausted by the labours of the day, and less fit for active usefulness. In cases of acute disease, above all, this rule should be scrupulously followed.

The last point which I would strictly enforce is, that

the medical attendant should never be made an object of terror to the child, for the purpose of quieting it, or forcing it to submit to disagreeable remedies or the ordinary restraints required during both health and illness. The usefulness of the family physician depends in no small degree on his being on the very best terms with the children, and approached and welcomed by them as their steady friend. When he is viewed in this light, his presence soothes and tranquillises them during illness, influences them to take the necessary remedies, and greatly promotes recovery. Ignorant and thoughtless mothers employ threats of what "the doctor will do" if the child will not take medicine or submit to some other offensive prescription. The result of this folly is, that when the child is really ill, it is thrown into such agitation by his approach, that he cannot distinguish accurately how much of the disturbance is due to fright, and how much to disease.

Occasionally the same ready method of reducing the child to submission is resorted to by the attendants, without the knowledge of the parents; and my chief object in now directing attention to it is to put mothers on their guard, that they may not only strictly prohibit all such proceedings, but take care, by their own watchfulness, that their orders be fulfilled. By neither parents nor attendants ought the physician ever to be spoken of in the presence of the young but with kindness and respect. If he is a man in whose character and skill the parents have confidence, he deserves this at their hands. If he is not, the sooner they change him for another the better.

CHAPTER XIV

THE MENTAL CONSTITUTION AND PRINCIPLES OF TRAINING IN INFANCY

HAVING discussed the physical management of infancy, I come now to consider the principles which bear on the not less important subject of the intellectual and moral training at this early stage of life.

Man, as he exists in this world, is a compound being. We cannot conceive of him as either mind alone or body alone. Living as he does in a material world, surrounded by other organised beings like himself, and depending for his existence on material things, he would be as entirely out of harmony with the rest of creation were his mind unprovided with material organs, as an organised body would be without a mind to direct its movements. To enable man, then, to fulfil the purposes for which he was sent into the world, his education ought to have reference to *his whole nature*—to take for its aim the *development of a sound mind in a sound and vigorous body.* In whatever manner, and to whatever degree, physical, intellectual, or moral education falls short of the attainment of this aim, to that extent it is defective. To restrict it, as is usually done, to the cultivation of a few—and these not the highest—of the intellectual faculties, to the exclusion both of the physical system and of the moral and the higher intellectual powers, is to renounce the most important advantages which education is capable of conferring. Not a year passes in which examples of this error do not occur in our universities—of some highly-gifted but over-strained mind breaking down in the hour of its greatest promise, and forfeiting, when almost within its grasp, that prize for which it has sacrificed everything, and which it has, perhaps, the mortification of seeing carried off by some

competitor more remarkable for healthy, industrious, and prudent mediocrity, than for either genius or extent of acquirements.

In infancy the mental constitution presents the rudiments of the same powers which characterise the human being in mature age. The senses of sight, hearing, taste, smell, and touch, and the faculties of emotion, perception, and thought, are all essentially the same; but some are developed much sooner than others. At birth, only the powers of sensation are actively manifested, and even they are at first very imperfect. Light may strike upon the eye, or sound upon the ear, and yet no clear impression seems to be conveyed to the infant—unless, indeed, the impulse be of sufficient intensity to excite pain, in which case it will give unequivocal indications of uneasiness. As yet, one only of its actions seems to have a determinate end—that of turning the mouth to the mother's breast in search of the nipple, and of sucking it when found; but even this seems to be unattended with consciousness.

THE EXTERNAL SENSES.—A week or two after birth the eye begins to follow the light, and sudden sounds give rise to a start as if of surprise. By degrees, the organs of the senses become capable of receiving and transmitting to the mind distinct impressions; but it is not till after the lapse of years that they attain their fullest vigour and capacity. In this respect man is remarkably different from many of the lower animals, which see and hear distinctly from the first, and not only at once distinguish and pick up the grain or insects which are their natural food, but move and act with an almost unerring freedom and decision.

When we inquire into the cause of this striking difference, we have no difficulty in finding an explanation. In animals which are born with the different senses ready to start into action, we invariably find the corresponding organs of sense developed in a proportionate degree; whereas in man, and those other animals whose senses are very imperfect at birth, the organs are still immature or imperfect in structure—and each sense acquires power and facility of action only as its organ becomes developed, and is duly exercised on the objects with which Nature has placed it in relation.

From this dependence of each of the senses on the condition of its special organ, two results necessarily follow, which should be kept in view in attempting to educate or improve them. The first is, that, the different senses being connected with different organs, one or more of them *may be developed before the others*—seeing before hearing, for instance, and taste before smell. The second is, that when we wish to call any one of them into exercise, *we must present to it its appropriate object or stimulus.* If we wish to improve vision, we must admit light, and present visible objects to the eye, in a manner adapted to the nature and delicacy of the organ. In the case of the ear, if we either exclude sounds altogether, or subject it to the impulse of loud and sudden noises before its structure is matured, we may impair, or even destroy the sense of hearing; whereas, when we adapt the exercise of the organ to its structural delicacy, we promote its development and increase its power. The same principle applies to smell, taste, and touch.

Hence it is that among some savage tribes the senses of hearing, seeing, and smelling acquire, through well-regulated systematic exercise, an intensity of action which would be incredible if the facts were not authenticated beyond the possibility of cavil. Taught by early practice, the savage can distinguish the tread, and track the route, of an enemy or an animal, when no sound or trace is perceptible to the civilised man. In our own pastoral districts, the shepherd can distinguish the individuals of a numerous flock of sheep, while to an unpractised observer all seem to be perfectly alike. From a similar training, the senses of touch and hearing become remarkably acute in intelligent and active-minded blind persons. The general quickness of hearing among the blind, and their correct appreciation of sound, are too well known to be dwelt upon.

For the production of this extraordinary acuteness, the method simply is to exercise, from the earliest youth, each organ of sense systematically, habitually, and energetically, upon its appropriate objects, till acuteness is gained by dint of frequent and attentive repetition. When a sound is made, the ear is acted on whether we will or not; when light strikes upon the eye, we cannot but see; and when the air is impregnated with strong perfumes, smell takes cognisance of their presence and qualities without any exercise of

volition. But when these natural means of excitement are excluded, the organs of the senses languish and become feeble from want of exercise, and differences in impressions made on them are unnoticed, which, in a more cultivated state of the senses, would have been instantly and accurately recognised. The infant acts from an early period in almost instinctive obedience to this principle; for it delights to exercise its eyes on brilliant objects and colours, to train its ear to the discrimination of sounds by every variety of noise, and to educate the sense of touch by feeling and handling everything within its reach; and if it does not seek the exercise and gratification of smell in the same way, it is only because the organ is still comparatively unfit for its function. So entirely, however, do many parents and nurses overlook the object and beneficial tendency of this employment of the senses, that when the child makes a noise in the nursery, amuses itself in the playful exercise of its voice, or lays hold of any object to examine it, they are apt to regard only the disturbance to themselves, and to enforce silence and order —as if the child were guilty of some mischievous folly, instead of really performing a most useful and improving act of self-education, which requires only to be well directed to prove the source of important benefits. Even among thinking and educated persons, the external senses of the infant are treated with what is worse than neglect. At birth the eye is often exposed to the bright glare of day with as little consideration as if it were not a most delicate organ. The ear is subjected to loud and sudden sounds, which, in extreme cases, go far to destroy its delicate nervous structure, and induce deafness for life; while no pains are bestowed in training the sense to finer and finer perception by well-graduated exercise, according to the condition and development of its organ. Imperfections of sight and hearing are sometimes thus produced at the very dawn of existence, when a little knowledge and prudence might not only have preserved the sight and hearing, but have improved both in a remarkable degree.

As the senses are bestowed on us for use, and are so susceptible of cultivation, and as without them man would be shut out from every source of active and social enjoyment, it is surely worth while to devote some attention to their preservation and improvement in infancy, when their organs

are still delicate, and easily modified by the manner in which they are exercised. The very prevalence of short-sightedness among the young of the middle and higher classes may be received as a proof that some error in hygienic management gives rise to this defect. Many reasons concur to render it probable that the long confinement of the young within doors, at school and at home, has no small influence here. The eye, like every other organ, adapts itself in a great degree to its circumstances. While that of the seaman or wandering Indian is accustomed to scan distant as well as near objects, and so becomes adapted by exercise for its varied duties, the eye of the boy or girl confined within the four walls of a house or the narrow streets of a city, is exercised only on objects at hand, and becomes unfit for the perception of those more distant — in other words, is rendered *short-sighted.* It is true that the original structure of the organ has a large share in the result; but it is equally true that exercise exclusively upon near objects tends greatly to aggravate the defect.

THE MENTAL FACULTIES.—We come now to treat of what may be called the internal faculties of the mind—namely, those included under the heads of *inclination*, *emotion*, *observation*, and *thought*; constituting the basis of the moral, religious, and intellectual character. To the exercise of these, we shall find that the same principles apply as to that of the external senses.

At birth the brain is so imperfectly developed, and so delicately constituted, as to be unfit for active mental manifestations; and accordingly we observe none, except, perhaps, signs of the consciousness of bodily pain, and the desire for food. Beyond these, no trace of activity of mind can be detected; nearly the whole time is spent in sleep. The structure of the infant brain being thus extremely delicate, it is very easily disordered, and even permanently injured; and injuries sustained by it may, as in the similar instances of the eye and the ear, impair the efficiency of its functions to the end of life—may even induce idiocy or imbecility.

Such is the state of the brain and mind for some time after birth. By degrees, however, cases of extended mental action begin to show themselves, and the appetite for food is

no longer the only instinct which seeks for gratification. The infant, by its looks and smiles, gives indications of awakening consciousness, long before it can conceive the nature of the cause by which it is excited. In this way it exhibits, even at a very early age, movements which neither sensation nor experience can explain, and which, as is happily remarked by an acute and elegant writer, are in truth the signs of its dawning affections. "Even at the early age of six weeks, when the infant is still a stranger to the world, and perceives external objects so indistinctly as to make no effort either to obtain or avoid them, he is nevertheless accessible to the influence of human expression. Although no material object possesses any attraction for him, sympathy, or the action of a feeling in his mind corresponding to the expression of the same feeling in the mind of another, is already at work. A smile, a caressing accent, raises a smile on his lips; pleasing emotions already animate this little being; and we, recognising their expression, are delighted in our turn. Who, then, has told this infant that a certain expression of the features indicates tenderness for him? How could he, to whom his own physiognomy is unknown, imitate that of another, unless a corresponding feeling in his own mind impressed the same characters on his features? That person near his cradle is perhaps not his nurse; perhaps she has only disturbed him, or subjected him to some unpleasant operation. No matter, she has smiled affectionately on him; *he feels* that he is loved, and he loves in return."[1]

Here, then, is the true key to the right training of the infant mind. The internal emotions, like the external senses, being distinct from each other, and independent in their action—let the appropriate object of any one of them, the organ of which is already sufficiently developed, be presented to it, and it will start into activity, just as the eye does when the rays of light impinge on the retina. Look, for example, at an infant six months old, and observe the extent to which it responds to every variety of stimulus addressed to its feelings. If we wish to soothe it in a moment of fretful disappointment, do we not succeed by gentle fondling, and singing to it in a soft affectionate voice? If our aim is to rouse it to activity, are not our movements

[1] *L'Education Progressive, ou Etude du Cours de la Vie*, par Mme. Necker de Saussure, vol. i. p. 144; Paris, 1836.

and tones at once changed to the lively and spirited? When an acrimonious dialogue occurs between the nurse and any other person in the presence of an infant, is it not common for the child to become as uneasy as if the angry expressions were addressed to itself, and forthwith begin to cry? If, on the other hand, an affectionate and gentle mother enters a nursery, and, imagining the infant to be asleep, merely addresses the nurse in the soft tones characteristic of her mind, do we not see the infant waken up, and with a placid smile look around to solicit the notice of its parent? Or, to use one more example, if a disagreeable, coarse-looking person happens suddenly to approach an infant, are not the instantaneous results an exclamation of terror, and a clinging to the mother for protection? In short, to call out and give healthy development to the kindly and affectionate feelings of an infant, we must habitually treat it, and every person in its presence, with kindliness and affection—the display of the natural stimulants to the organs of such feelings. If, on the contrary, we present to an infant the stimulus of grief, discontent, or bad temper, we call up in its mind, not kindliness or affection, but the disagreeable feelings which we exhibit; and by the habitual exercise of the portions of the brain with which these are connected, we promote their development, and thus run the risk of giving permanence to such unamiable feelings for life.

The bearing and importance of these truths would be at once perceived were parents acquainted with the laws of the animal economy, and with the fact that the mind acts through the medium of bodily organs, and is influenced by the state of these during the whole course of life. The mind can see only by means of the eye; and when the eye is injured by too strong or too weak a stimulus—namely, by being exposed to a dazzling light, or kept in utter darkness—vision is no longer distinct. We can hear only through the medium of the ear; and if that organ is either deranged by the impulse of too violent sounds, or rendered obtuse by want of exercise, we lose the power of hearing and discriminating sounds. When, on the contrary, the eyes and ears are suitably exercised, in the degree and with the attention which their delicacy requires, the senses of seeing and hearing become acute and active, and are ever ready at call; because their organs, strengthened by exercise, become

fully developed, and prompt to respond to their respective stimuli. And nobody ever dreams of attempting to strengthen any one sense by exercising the organs of another. In training these faculties, each must be exercised on the objects related to it; we cannot improve vision by reasoning, or educate the ear to the nice discrimination of sounds by scholastic precepts or metaphysical theories. We have no choice in the matter; our only course is to exercise the eye in actual seeing, and the ear in actual listening, or to remain contented with the possession of imperfect senses. Our Maker has assigned a distinct organ for the operations of each; and if that organ be injured or destroyed, no effort of ours will be successful in conveying to the mind the impressions which it alone was specially constituted to transmit.

Now, if, as I believe, it has been proved that the various propensities, affections, and powers of observation and reflection are no less independent of each other than the external senses are; that each of them acts through the medium of an appropriate portion of the brain, commonly called its *organ*; and that each is, by its natural constitution, related to a certain class of objects, and starts into activity when those objects are presented to it—some of the most formidable difficulties hitherto impeding the work of the educator are diminished or removed. By many parents, I am aware, the application of the physiology of the brain to the purposes of education will be regarded with suspicion, because the doctrine of the dependence of the mental faculties for their power to act in this life is regarded as hostile to religion. But no *truth* can have any such tendency.

To rouse, then, any of the emotional or intellectual powers into healthful action, the surest and most successful way is to bring it *within the immediate influence of the objects to which it is specially related.* If we wish to train the sense of sight to quicker perception, we employ the eye in the careful and rapid scrutiny of surrounding objects, of colours, magnitudes, and distances; if we wish to train the sense of hearing to a nicer discrimination of sounds, we exercise the ear in listening to and distinguishing them; and our success is in proportion to the degree in which we have received from Nature the endowment of the sense, and to the perseverance and judgment with which we pursue its cultivation. Precisely on the same principle, if, in our

endeavours to give improved action to the *sentiment* of justice, we merely address to the *intellect* the precept "Be just," we shall succeed no better than we should do in trying to improve vision by the employment of the ear in discriminating sounds. To cultivate feelings of pity and devotion, it is not enough to address the intellect by eulogiums on their excellence, which can act only on the reason. We must also directly *address the feelings themselves*, by showing sympathy and respect, and by bringing them into contact with suffering, which is ever too abundant around us. If the *natural stimulant* to the feeling be presented, the child will have no choice in the matter. The feeling will start into activity, precisely as vision does when the eye is penetrated by rays of light. As we cannot by an effort of the will cease to see or hear while light and sound reach the eye and ear, so is it impossible to suppress the emotion when its object is present.

Of this truth I had a touching example many years ago when in Italy, and in bad health. On calling one forenoon at a friend's house which I was in the habit of frequenting, I felt seriously unwell just as I reached the door. My friends were not at home, but I walked in and lay down on a sofa. Shortly a young girl, eighteen months old, came tottering into the room with a mirthful smile on her face. On seeing me in that unusual position, she at once became grave, and, gradually approaching me with a fixed look of sympathy, exclaimed, "*Cocore malato, cocore malato?*" "Is the doctor sick, is the doctor sick?" On my answering that I was, she looked at me compassionately for a moment, and then suddenly ran away. A moment afterwards she re-entered the room with a slice of bread in her hand, which she presented to me, saying affectionately, "*Pane, cocore, pane; cocore malato!*" "Bread, doctor, bread; the doctor is sick!" On my eating a little of it she seemed quite delighted, and remained beside me till I was well enough to go home. This strong sympathy at so early an age struck me forcibly at the time—and it does so still after many years—as a beautiful example of the ready response of the moral emotions on the sudden presentment of their stimulus. At an age when reason could scarcely exercise any guiding influence on conduct—when, in fact, the child could not pronounce the words she used—the

feeling of benevolence was instantly roused into activity by the mere appearance of suffering, and operated with all the force of an instinct, in ministering to my relief by *bringing me something to eat*—the only remedy of uneasiness she yet knew. The gratification that it obviously gave her to see me eat and gradually recover, afforded as clear an indication of pity and affection as if she had been able to express them in the most eloquent words that ever were uttered. The whole occurrence showed also how erroneous is the opinion so commonly entertained, or at least acted on, that reason is the sole source of our conduct, and that hence it is useless to begin even domestic education till reason has developed itself sufficiently to understand all that is said. Whether we heed it or not, education—by which I mean the formation of character, as well as intellectual instruction—commences for us *with the very dawn of life.* If we delay systematic education and training till the age of five or six, Nature will not remain idle till we are ready to begin. An unsystematic, irrational, and often hurtful education—namely, that arising out of the influences and circumstances by which every child is surrounded, and which never cease to act, for good or for evil, for a single hour of its life—will have taken the precedence, and raised up obstacles which may then render our best efforts fruitless. For it is not at school alone that a child can be educated; habits of indolence and vice may be learned from companions in the streets and highways, and from immoral example in a vicious home, quite as readily and certainly as habits of order, activity, and virtue may be acquired in our best-conducted schools.

Impressed by this great truth, Mr. Stow, in his excellent work on education, insists strongly on the necessity of beginning moral—not intellectual—training at the very earliest age; and he says that eighteen years' experience has proved most conclusively the advantages of doing so, and has demonstrated that "you increase geometrically in power as you descend in age, for if *training* at twelve years of age be as *one*—at nine it is as *two*—at seven as *four*—at five as *eight*—and at three years of age as *sixteen.*" I am convinced that the same principle would apply at a still earlier age; but no children being received by Mr. Stow under three years old, he of course could speak only of his experience from that age upwards.

CHAPTER XV

MORAL EDUCATION IN INFANCY AND CHILDHOOD

Assuming, as I may now venture to do, that whatever tends to modify the corporeal or mental constitution of man, tends to have a permanent influence upon him for good or for evil, it follows that although education, technically so called, is generally delayed till the age of five or six years, real education, or the influence of surrounding circumstances, begins at birth, and often lays a durable foundation for the future bodily and mental character, even before the dawn of distinct consciousness. From the moment that the child can express a want, and derive enjoyment from its gratification—from the moment that its bodily comfort is visibly increased or impaired by judicious or injudicious treatment—from that moment, although the intellect may still slumber in comparative inactivity, and be unable to generate one well-defined idea, intellectual and moral education has commenced, and, whether recognised as such or not, will continue to impress its effects on the constitution through life.

If, bearing this important truth constantly in mind, the mother be careful to direct her training in harmony with the laws of Nature, she will reap her reward in the continued improvement and happiness of her child. But if she act otherwise, much mischief may be done, not only before the child can think or reason, but even before it can speak. It is a common excuse with over-indulgent mothers for omitting to correct even glaring impropriety of feeling or of conduct, that the child is still "too young to listen to reason," and that it will be time enough to check such aberrations afterwards. This is a great mistake. In infancy we are governed not by reason, but by the well-directed affection and kindness of our guardians; and to wait till the development of a child's understanding before we commence its moral

training, is to wait till years of unregulated indulgence shall have strengthened its more selfish and powerful appetites and passions.

So entirely is the infant under the influence of this natural parental ascendency, that it seems almost as if intuitively aware that its safety and well-being lie in its very dependence; for, powerless in itself, it is ever ready to yield implicit obedience where it has experienced consistent sympathy and kindness. This is so true, that when a child *habitually* disputes or rebels against the authority of its guardian, we may be sure that it is either suffering from physical discomfort, or fretted by injudicious management. At that early age, habitual peevishness and discontent indicate the existence of some real grievance, and not of mere wilful perversity; and whatever the evil may be, every means should be used for its removal before it shall have taken root, and have left in the system traces which may never be effaced.

As, then, the feelings or emotions come into play long before the intellect is sufficiently developed or enlightened to direct or control them, it is obvious that if their proper regulation by the parent be unduly delayed by waiting for the dawn of reason, the character and happiness of the child must remain meanwhile very much at the mercy of accident. In highly favourable circumstances, comparatively little mischief may ensue. But if, besides wanting proper guidance, the child should be exposed to the contaminating influence of ill-tempered, selfish, or vicious guardians or companions, its character may sustain more serious injury than years of subsequent care can compensate.

Of the errors committed in the training of early childhood, the two which are perhaps the most common may be said to arise from the tendency of human nature to go to one extreme while seeking to avoid the other. One of them consists in allowing the will of the child to have almost unlimited sway, and consequently permitting the unregulated and unlimited indulgence of every wish. The other consists in substituting, on all occasions, the mother's feelings, inclinations, and judgment for those of the child, and regulating even the most unimportant details by a rigid adherence to rules. By the former of these methods, selfishness is so directly and systematically cultivated, that in most instances the child

becomes thoroughly "spoiled." By the second, the child finds itself so continually thwarted, that its spirit is broken, and it is made to lead a life of fretting and wretchedness. A third error, far from uncommon among weak-minded over-anxious mothers, consists in asking, and acting upon, the advice of every visitor who happens to cross the threshold. The parent's only safety in all these circumstances is to be found in making herself acquainted with the nature of the infant constitution. Were the guardians of the young more deeply impressed with the advantages to be derived from assuming this standard for their rule of action in regard to the details of infant management and training, they would be more doubtful of the wisdom of substituting the blind prejudices of the nurse or of bystanders for the rational advice of the experienced and enlightened physician.

In early childhood, as well as in maturer age, spontaneous, varied, and harmonious activity of mind and body, elicited by objects calculated to rouse without exhausting our faculties, constitutes our highest enjoyment, and indolent inactivity about the lowest. Sprightly animation and idiotic apathy thus represent the two extremes; the one accompanied by a pleasing consciousness of happiness, and the other by a dull and gloomy dissatisfaction. As a natural consequence of this part of our mental constitution, the highest and purest enjoyment which we ever experience is that springing from the gratified activity of our higher sentiments — benevolence, veneration, conscientiousness, hope, wonder, and ideality—regulated by a well-trained and well-furnished understanding.

Here, then, we have three distinct principles for our guidance in promoting the health and happiness of the young. The first is, that the system of management shall be such as to afford ample opportunity for the due and appropriate exercise of *all* the bodily and mental functions. The second is, that, while fulfilling this aim, we shall not allow the mental activity to be carried to such excess as to exhaust or weaken the faculties exercised. The third is, that, while affording due scope for the gratification of the propensities and affections which fit us for the domestic relations of life, we shall carefully prohibit every indulgence at variance with the dictates of the moral sentiments and intellect.

In all cases, adaptation to the wants, feelings, and nature

of the infant—so different in many respects from those of the adult—ought to be made the leading principle of our management; and accordingly the child ought, as far as possible, to be allowed the choice of its own occupations and amusements, and to become the chief agent in the development and formation of its own character. So long as it manifests feelings, desires, or intellectual wants which are in themselves right and proper, we cannot in any way contribute to its welfare and happiness so much as by allowing it due scope for their gratification. In this respect the lower animals teach us a valuable lesson. The young kitten gradually develops its muscular powers, and peculiar instincts and qualities, by their free and playful exercise according to its own wishes; but it does so under a vigilant maternal guardianship, which, while leaving it ample liberty of locomotion and amusement, is yet ever ready to interfere in case of danger. If, however, the cat were to insist on prescribing to the kitten in what manner it should amuse itself, and when it should begin and when leave off its frolics, the harmony and affection between them would speedily come to an end. Under the guidance of an instinct which supplies the place of reason, the cat allows the kitten to pursue its frolic in its own way; and if she does not always take an active share in it, she does not put a stop to it unless her interference is required by an adequate cause.

Precisely the same principle ought to be followed with the child. Let it be left free to feel and act according to its own inspirations, so long as its feelings and conduct are physically harmless and morally proper. But let the parent be at all times watchful, and ready either to check or to give a better direction to its activity when prudence requires it. Improper conduct and unreasonable demands should at once be curbed with a kind and gentle but firm hand, and the child be made to feel that the denial, being dictated by love, is unalterable by entreaty. In this way implicit obedience will soon be secured. To the young, the harsh or vacillating exercise of mere authority, unguided by reason, and uninfluenced by kindly affections, is as grating and disagreeable, and as provocative of resistance, as it is to the adult. Even in its earliest months the infant learns to distinguish and appreciate genuine and rational kindness, and, when managed with a little tact and good sense, yields

willingly to the benignant influence. In most cases, therefore, it is the parent rather than the child that is in fault, when irrational and vacillating over-indulgence brings forth the natural fruit of selfishness, peevishness, and caprice.

From the preceding view of the sources of enjoyment in infancy, it is obvious that the best thing we can do is, to afford the child all due facilities for the wholesome exercise of its various functions and faculties, according to their actual state of development, and to encourage rather than supersede its efforts to entertain itself. It would serve no good purpose, even if we were able, to convert the infant into a puppet moved only by our will. A child thus trained, and discouraged from the free exercise of its own faculties, and from placing the slightest reliance on its own caution and foresight, by being taught to trust to another's prudence for its security and direction, may seem at first sight to be less wilful and more amiable than other children of the same age who have been more independently trained. But in after-life, especially when the temperament is sluggish, the child, so trained to act only at the bidding of another, will be found to display a feebleness and indecision of character, strongly in contrast with the promptitude and energy manifested by those who have been trained, from an early age, to think and act for themselves, under the superintendence and correction, but not the dictation, of their natural guardians.

From the difference between these two modes of training not being generally understood, the young are often treated as if it were as advantageous to render them the *passive* instruments of another's feelings and ideas, as to enable them to become the *active* agents in their own guidance by the exercise of their own faculties. But no reflecting person can have much experience in observing and directing the youthful mind without becoming fully alive to the superiority of the latter method. Common sense itself may teach us that if, from misplaced and ill-judged tenderness, we contrive with over-watchful care to forestall every wish and gratify every feeling of the child, without allowing it the satisfaction of actively contributing to its own gratification —if we try at every moment to draw its attention from what pleases itself to what we consider a better source of enjoyment—we not only deprive it of the higher pleasure

of gratifying its spontaneous activity according to its natural wants and inclinations, but deprive it of the proper incitement to the very form of mental exercise which is best calculated to develop and improve its powers. The instinctive readiness with which a child, on seeing anything done, cries out, "Let me do it too!" suggests to us the propriety of making a more extensive use of the same tendency in conducting its education.

Another evil inseparable from the method of doing everything for a child, instead of allowing it, to the greatest possible extent, and even at the occasional cost of a little temporary suffering, to be the agent in its own education, is, that when trained to act only under surveillance, it becomes useless and bewildered, or falls into mischief, whenever the watchful eye is withdrawn, as sooner or later it must be. It is trained to regulate its conduct by the uncertain will and feelings of another, and not by a standard which is at once known and always accessible to it. In other words, it is trained to *moral slavery*; and the more perfect the discipline, the more will its mind partake either of the feebleness consequent on entire subjection, or of the rebellious perversity which fits it for becoming a tyrant in its turn.

In the moral management of infancy, then, the great aim of the mother ought to be, to call into due activity the various feelings or emotions, as well as intellectual powers; since it is chiefly on the well-regulated and harmonious operation of all the mental faculties that the future character, usefulness, and happiness of the child depend. But although the infant, even from its earliest days, should be induced to minister, as far as possible, to the gratification of its own wants, this by no means implies that it should be encouraged or allowed to follow every whim, whether right or wrong, well or ill timed. On the contrary, *obedience* and *self-denial* ought to be among the earliest of its lessons; but the requisite discipline should be enforced by giving *insensibly* and *kindly* a right direction to the impulses and desires, rather than by meeting them with a rude denial.

CHAPTER XVI

FURTHER REMARKS ON THE MORAL MANAGEMENT OF INFANCY AND CHILDHOOD

HAVING stated my views of the mental constitution in infancy, and expounded some of the principles by which I think we should be guided in our endeavours to promote the welfare and improvement of the young, I now proceed to offer some additional remarks, illustrative of the application of those principles to the ordinary management of the nursery and domestic circle.

From the many examples which are continually to be met with of the mother's influence over the mental condition of her offspring, it has often been affirmed that bad temper, strong passions, and even intellectual peculiarities, are communicated to the infant *through the medium of the mother's or nurse's milk*, and that hence it is of great consequence, in choosing a nurse, to select one of a cheerful and amiable character. But in all the cases of this kind which have come under my observation, the supposed influence of the milk on the dispositions of the nursling was much less evident than that of the moral infirmities and defects of temper in the parent, in exciting, and training to vigorous action, the corresponding passions in the child. Many sensible people imagine that they may say or do anything in the presence of a child, because it is too young to observe or to be affected by it. But, according to the principle explained in a previous chapter, this is a great mistake. It is true that an infant is unable to form a sound intellectual opinion of any occurrence; but it is not less true that from a very early age, its feelings respond to the calls made upon them, and thus give a bias to the mind long before the child can exercise any act of judgment. From the natural relation which exists between the different mental faculties

and their stimuli, it is thus most important that the circumstances in which the young are placed during the impressible period of infancy, should be such as tend to call into fit and habitual action the best feelings and faculties of our nature. Since the best cultivation we can give to the moral and intellectual powers is that which secures their regular and frequent exercise, it follows that the character and dispositions of the child will in no small degree be influenced by the character and dispositions of those to whose care it is confided, and in whose society it spends the earliest years of its existence.

It is, moreover, a common and pernicious error in modern education, to imagine that the passions and moral emotions *are the results of intellectual cultivation*, and that intellectual discipline, and storing the mind with precepts, will suffice to regulate them. Parents are often disappointed and displeased with a child, when, after a full explanation of the impropriety of the feeling or passion, it still, on the recurrence of the temptation, gives way to it as much as before. Fortunately for mankind, however, morality and religion have a much more solid foundation than this; they are based on feelings implanted in the nature of man, which mere intellectual cultivation or neglect can neither generate nor destroy, and the real strength and authority of which will not be fully recognised till they are cherished and developed in more strict accordance with their natural constitution. Like the external senses, the mental faculties must be habitually exercised on their appropriate subjects, before they can attain their due influence over the character and conduct. Almost from birth this principle should be systematically acted on, and the utmost care be taken to secure at all times a healthy moral atmosphere around the young. To do perfect justice to the infant, there is required, on the part of the mother, a combination of cheerfulness, good sense, knowledge, readiness of resource, and unfailing kindness and impartiality, which is not often to be met with. But by aiming at a high standard we shall make a nearer approach to what is required, than if we quietly rest satisfied with whatever occurs. It is lamentable how many mothers there are, who, from indolence or other causes, leave the entire control of their offspring to unqualified attendants, and even themselves indulge in displays

of anger or caprice, which never fail to act injuriously upon the infant.

Let us, then, not deceive ourselves, but ever bear in mind that *what we desire our children to become, we must endeavour to be before them.* If we wish them to grow up kind, gentle, affectionate, just, and truthful, we must habitually exhibit the same qualities as regulating principles of our conduct, not only towards them, but towards all; because these qualities act as so many stimulants to the corresponding faculties of the child, just as light to vision, and odours to the sense of smell. If we cannot restrain our own passions, but at one time overwhelm the young with kindness, and at another surprise and confound them by our caprice or deceit, we may with as much reason expect to gather grapes from thistles, or figs from thorns, as to develop moral purity and simplicity of character in children. It is in vain to argue that, because the intellect is feeble, it cannot detect the inconsistency of our conduct. The feelings and reasoning faculties, being perfectly distinct from each other, may, and sometimes do, act independently; —the feelings may at once condemn, although the judgment may be unable to assign a reason. In many instances, indeed, we are impelled to act before having time to think deeply about the best course to be pursued. In such cases, it is feeling which takes the lead, and in a well-constituted mind it rarely prompts to a course which reason would have refused to sanction. In this result we have another example of the admirable harmony which prevails in the moral as in the physical world, and which renders it impossible to pursue a right course without doing collateral as well as direct good, or to pursue a wrong course without producing collateral evil. If the mother, for example, moved by affection for her children, endeavours to keep any infirmity of her temper in subjection, and ultimately succeeds in placing herself under the habitual guidance of her higher feelings in her conduct, the good which results is not limited to the improvement of the child. She herself becomes healthier and happier, and every day adds to her influence. If, on the other hand, she give way to fits of passion, selfishness, caprice, and injustice, the evil is by no means limited to the suffering which she brings upon herself. Her child also suffers both in disposition and in happiness; and while,

in the one case, she secures the love and regard of all with whom she has to do, in the other she rouses only their fear or dislike.

It is a grave mistake to imagine that it matters little whether the person to whose guidance the infant is entrusted be an active-minded and amiable woman, or one whose good-nature is the passive product of a vacant and indolent mind. If the mother be a right-minded woman, and acquainted with the nature of the being committed to her charge, she will understand how important it is that during infancy her child should be surrounded by persons of intelligence, refinement, and morality, and will see that it is a gross dereliction of duty to devolve her trust on incompetent substitutes. The mother is the natural guardian of her infant's happiness; and if *she*, when able, is neglectful of her duties, is it to be expected that any substitute, however well qualified, can fully supply her place?

In thus attaching a high value to the mother's influence, in preference to, or along with, that of even the best-qualified attendants, I have no wish to speak lightly of the services of a kind, intelligent, upright, and experienced nurse. So far from this, I have great pleasure in stating that I have met with some whom I have considered better qualified for their duties, by temper and knowledge, than the mothers whose place they supplied; and that I have often witnessed as much self-denying and unwearied devotion on the part of nurses to the welfare of their little charges, as it is possible for any human being to manifest towards the offspring of another. The deficiencies with which many of them are chargeable are almost inseparable from their position in society, and imperfect education; and if, in their ignorance of the laws of the human constitution, they sometimes do mischief when their aim is good, this is only what happens very frequently with the mothers whom they serve.

But while the behaviour of the mother and attendants *to the child itself* ought to be under the habitual influence of our best feelings, it is equally important that the behaviour of the attendants *to each other* should be in a like spirit. I have already instanced the effect, upon the child, of an angry scold conducted in its presence, although not addressed to itself.

Infant-schools have been strongly objected to, because

two years of age is considered too early for commencing the business of education. But as practical education and emotional training really begin at the dawn of consciousness, the true question is, whether the child will derive more advantage from the education of chance, or from an education adapted to its natural constitution. Nobody has condemned more strongly than I the establishment, under the name of infant-schools, of places of confinement, and intellectual and theological cramming; nor can anyone have a clearer perception of the evils they inflict on the young. But such establishments are mere abuses of a thing really good in itself. A fitter instrument for the physical, moral, and religious training of infancy can scarcely be imagined, than a seminary in which the young are brought together, and their affections and finer feelings called into habitual and pleasing exercise in the regulation of their behaviour towards each other in their sports and general conduct, while their physical energies are developed and strengthened by inspiriting and social exercise. In a well-conducted infant-school, intellectual tasks and close confinement are unknown, while the senses and the observing powers are agreeably employed in the gratification of the strong curiosity so natural to that period of life. Objects, or representations of them, should be placed before the child, and its attention be directed to their colours, forms, properties, and uses; exactly on the principle, already so strongly insisted on, of presenting every faculty of the mind with its direct stimulus when we wish to excite it to activity. But if, instead of thus following the footsteps of Nature, we attempt to convey instruction by language merely, we must beware of regarding the ready repetition of a sound, as a proof that the thing represented by it is understood. The quick imitative faculty of a child may seize in a moment the sound made by its teacher or companions, and yet its mind may be wandering during all the time of the lesson. This, however, is no proof that a proper system of infant training is bad. It only shows that many things which are done in so-called infant training are at variance with sound principles, and that teachers must themselves be trained for teaching before their services can be productive of every possible advantage to the pupil.

The public mind has been so long accustomed to associate

education exclusively with the idea of intellectual *teaching*, and parents in general attach so little value comparatively to the influence of good *training* in the formation of character, that I cannot, even at the risk of being tedious, abstain from repeating once more that infant-schools, and the habitual society of other children, are, in my opinion, to be prized chiefly for the advantages which they afford for the development and due regulation of the emotional part of our nature. Our affections and moral emotions have direct reference to other human beings, and in solitude cannot find objects to excite or gratify them. We must feel attachment *to someone*, act justly or kindly *to someone*, fear *someone*, be angry *with someone*, and seek the esteem *of someone*. To develop the powers which God has given us, and turn them to purposes conducive to our happiness, we must therefore associate with our fellows, and in our intercourse with them practise habitually justice, kindness, affection, and forbearance. In solitude, on the other hand, the various faculties have *self* alone for their object; the beings on whom we should pour out kindness and affection, and towards whom we should exercise patient forbearance and justice, being absent, the higher and more disinterested faculties, which contribute so largely to our happiness, are necessarily deprived of their legitimate exercise and enjoyment. And this forms one of the most serious objections to private education.

Before taking leave of the subject of infant-schools, I must refer briefly to a serious mistake which threatens to convert many of them into sources of positive injury to the young. I allude to the subordinate importance which their managers attach to that physical and moral training which ought to be their primary object, and to the prevailing tendency to convert them into ordinary seminaries for scholastic teaching, and for the inculcation of abstruse points of faith. I am quite aware that, in most instances, these changes have been made under the influence of the highest motives. But the course pursued is too palpably in opposition to the natural order of development of the human faculties, to succeed in effecting its aim—that of early implanting a sense of religion in the infant mind. Were the subject to be inculcated any other than religion, should we not act very differently? Suppose that the happiness

of a man's life were to depend, not on his religious character, but on the extent of his mathematical knowledge, and on his success in applying it to the regulation of his conduct. The question would then be, How shall we educate him so as to secure, to the greatest possible extent, the knowledge so indispensable to his welfare? Ought we to begin in infancy by drilling him to repeat the rules of arithmetic, and by teaching him the propositions of Euclid? Should we not rather follow the more rational course of first promoting the healthful development of his bodily and mental constitution, and cultivating his senses and perceptive faculties in the observation of the things around him; and proceed to the study of numbers and mathematical relations and proportions, only when the corresponding intellectual faculties had become sufficiently developed to appreciate them and their applications? Everyone will agree that the latter would be the proper course, and that to trouble a very young child with rules of arithmetic and propositions from Euclid would only weary and disgust him. The words of the rules might, indeed, be impressed on the memory, and for a time be repeated with parrot-like accuracy; but not being understood, they would prove utterly barren, and soon be forgotten. If, however, following the order of Nature, we let the earlier years of the child be employed in gaining an extensive and accurate acquaintance with the objects around him, and their properties and phenomena, we shall thereby lay the surest foundation for his future success in receiving instruction in arithmetic and geometry; because then not only will he possess the facts to which the scientific principles are to be applied, but his maturer faculties will be more able to trace the relations among them, and to appreciate the practical value of the knowledge he has gained.

Now, the same principle applies to the religious education of the young. Believing, as I do, that no form of human happiness can be relied upon which does not rest on a sound religious foundation, I am as desirous as anyone can be to imprint on the youthful mind, at the earliest possible age, such a sense of our immediate dependence on God as it is capable of receiving. But, considering the feeble development of the *intellect*, and the activity of the *feelings*, in childhood, it seems to me as hopeless a task to attempt to render a

child religious by teaching him to repeat theological dogmas which he cannot understand, as to make him a mathematician by teaching him to repeat the rules of arithmetic, or the terms of a geometrical proposition. But the result will be widely different, if, again following the order of Nature, we *begin* with the careful training of the *feelings* and *affections*, and the direction of the *observing faculties*, which are early in activity; and delay till a maturer age the inculcation of creeds and dogmas, which address themselves to the *intellect*. In this way we may succeed in gradually forming those pure and virtuous habits which constitute the best ground-work for the superstructure of a true religion. If religion consisted wholly in certain outward forms of worship, and in the belief of certain abstruse doctrines, there might indeed be an excuse, although still an unsatisfactory one, for attempting to reverse the order of Nature. But, however important creeds and dogmas may be for guidance in maturer years, or for holding men together in ecclesiastical societies, knowledge of them is far from constituting the most essential part of personal religion, and they are precisely those portions which are least applicable to the period of infancy and childhood. Instead of promoting peace and goodwill among men, they have been in all ages the chief sources of that fierce and bitter strife which has so often disgraced the Christian profession—and they will, I fear, continue to be subjects of contention as long as religion shall be made the arena for displays of intellectual gladiatorship, and matter of deep and abstruse speculation. True religion addresses itself to our highest and purest emotions; in the teachings of Jesus it is always the keeping of "*the heart*" that is emphatically spoken of as its vital essence, and at no period of life can that object be more successfully prosecuted than in infancy. Religion, then, not only may, but ought to be taught even from early infancy; but it is with the religion of the heart that we must begin. The obligations to honour father and mother, to do justly and love mercy, to forgive injuries, to do good to those who hate us, and to abstain from envy and uncharitableness, are integral parts of true religion. The habitual fulfilment of most of these obligations depends, however, much more on the proper discipline and regulation of our moral nature, than on intellectual attainments; and hence, our success in

performing them in mature life will depend, in no small degree, on the extent to which we have been trained to practise them in childhood, when the feelings can easily be bent in a right direction. We have the assurance that if we "train up a child in the way he should go, when he is old he will not depart from it"; but the promised result is to be consequent on *training the child*, and not on merely teaching him either doctrines or forms. Let us not, then, be alarmed by the frivolous and yet common objection, that religion would be endangered if infant-schools were limited to their proper objects of physical and moral training. The very reverse is the truth; for the surest basis on which religion can rest in early life, is the lively influence of its practical spirit in the love and affections of the child. For fostering this spirit, there can scarcely be a fitter means than a well-conducted infant-school—except, indeed, the habitual and varied intercourse of a large and well-regulated family and social circle, in which the young are brought together, and their affections and nobler feelings are called into frequent and pleasing exercise, both by the habitual example of their parents and associates, and by their own direct training for the duties of social life. In childhood the domestic example exhibited in the habitual regulation of the feelings, character, and conduct of all around, in accordance with the dictates of a pure and elevated religion, will, when occasionally accompanied with a simple explanatory remark or anecdote, do more to stamp a similar character on the impressible mind of a child, than the learning by rote of the whole creed and doctrines of the Church. All experience shows that the infant is easily touched by a simple and direct appeal to its feelings, but remains unmoved if addressed only through the medium of words which its unformed mind is incapable of understanding or appreciating.

From the exposition which has been given in the preceding pages, it will now, I trust, be evident that whatever acts upon the senses of a child, interests its feelings, or attracts its observation, must become a means of education. Even the locality and climate in which a child lives, the objects by which it is surrounded, the ordinary occurrences of the nursery, the spirit which they exhibit, and the very toys with which it amuses itself, become, under the direction of

an enlightened mother, a means of educating its feelings and its intellect. "In caressing a dog or a cat in the presence of a child," says the acute observer already quoted, "we develop that sympathy which the young so easily experience for animals; by showing him a beautiful object, and getting him to look at it in detail, we both strengthen his attention, and excite in him admiration, which is one of the most exalted movements of the soul; by placing imitations or pictures before him, we awaken his imagination; and so, in a thousand different ways, we may appeal to his dawning faculties. When once the mind has been put in play by some impression, he associates it with himself, and acquires clearness and precision of perception by occupying himself with it. It is thus that he exercises and forms himself. To vary, without excess, the sensations of the infant, always embracing his moral nature at the same time to the utmost possible extent, constitutes the real education of the intellect in early infancy. It is also the best education for the moral feelings, which at that age ought to be most assiduously cultivated."[1]

In the preceding pages, I have dwelt much on the greater facility with which the mental faculties are called into action by presenting to them their own direct objects than by any other means. But obvious as this principle is when broadly stated, and beautifully as its influence in strengthening the faculties, by exciting them to lively activity, is illustrated in the above quotation, it is surprising how little it is generally appreciated or intentionally applied by parents, or even by professional educators.

Another rule arising out of the natural constitution of man, and which is important in the moral and intellectual management of infancy, is, *to give due exercise to all the faculties, and not to cultivate any to excess, while others are allowed to languish from inaction.* It is the more important to bear this rule in mind, because it points to an error very frequently committed. If the moral faculties were as assiduously exercised in infancy as the feelings of vanity, self-esteem, cautiousness, secretiveness, and wonder, there would be a much more rapid advance than there is in the morality of mankind. In infancy, the moral feelings respond readily

[1] Necker de Saussure, *L'Education Progressive*, vol. i. p. 158.

to any call made upon them; and if children were not so habitually perplexed by the contrast between the *precepts* and the *conduct* of those around them, those feelings would become daily more influential over them, and at last gain paramount power in regulating the ordinary actions of life.

It is of much importance to begin the moral training of the young by suitable exercise of the different feelings and emotions *from their earliest dawn*; and not to allow any of the propensities to gain an undue ascendency by habitual indulgence, while the kindlier feelings remain weak from inactivity. Knowing from experience how susceptible the infant is of mental as well as physical impressions, we ought to be more careful about the proper treatment of its moral nature; for just as certainly as the sight or hearing may be cultivated, by reiterated exercise, to the nicest and quickest sensibility, or be enfeebled and blunted by inaction, so may the feelings be modified in strength, rapidity, and precision of action by habitual use or disuse.

Variety of occupation is another important means of success in infant education. In early life, the nervous system is too mobile and excitable to admit of long-sustained effort in any one direction—a fact of special moment in the education of children in whom the mental powers are feeble. The very restlessness and impatience which ensue when we attempt to fix the attention of a child for a long time on one subject, afford a clear indication that variety of occupation and amusement is the means intended by the Creator for ensuring due scope and exercise for all the faculties. Even so early as the fifth or sixth month, the child, when awake, is always looking, listening, feeling, moving, and giving expression on its ever-changing features to a variety of mental emotions. At one moment we see the smile of affectionate recognition on the entrance of its mother; at another, the playful enjoyment of muscular motion in its limbs; at a third, the delight of gratified wonder and curiosity, arising from the handling or tasting of some new object; at a fourth, peevish dissatisfaction from being thwarted in some wish; at a fifth, gratified affection, roused by the unexpected appearance of a little brother or sister; and at a sixth, the fear of some unprepossessing stranger, from whose approach it shrinks in alarm. True, it cannot express its feelings in words, but to the intelligent mother

every motion is as perceptible as if uttered in the plainest language. And if it be granted that such is the variety of active feelings in the infant mind, can anyone maintain that the right or wrong direction of these feelings, or the means by which a right direction may be most certainly given, is a matter of little importance to the future happiness of the child? It ought, I repeat, to be constantly borne in mind, that the due exercise, upon their appropriate objects, of all the affections and moral emotions, is as indispensable to their development and strength, as exercise of the intellectual powers is to intellectual proficiency; and that harm must result when the mode of life or management is such as to keep a few only of the mental faculties in preponderating activity, to the repression of those which are not exercised. This result is most likely to ensue where a child has no companions, and is without variety in its daily life; care should therefore be taken to guard against these evils, particularly when the tuition is private.

PROGRESSIVE DEVELOPMENT OF THE MENTAL FACULTIES.—In exercising the different powers of the mind, we should attend to the *degree* in which they are respectively developed at the different stages of infancy and childhood, and adapt their management to their relative maturity. Everyone is familiar with the fact that the external senses are not all equally developed at the same time, but appear in succession. The same thing holds with the mental faculties; they also are developed in succession, and arrive at maturity at different ages.

In the case of the *external senses*, the power of sensation is observed to be directly proportioned to the degree of maturity of their respective organs. Such animals as both see and hear perfectly at birth, do so simply because the organs of both senses are already fully developed. Others remain blind for several days, and acquire by slow degrees the power of distinguishing objects. So also the human infant feels before he sees or hears, and both sees and hears before he seems to smell. These results are always in harmony with the state of the respective organs. The nerves of feeling are well developed before the eye or ear is matured; and the eye and ear are already well organised while the nose remains flat and small, and the nostrils are of limited extent.

If, however, light were shut out from the eyes, and the other senses were never exercised, the development of their organs would be retarded, and their vigour impaired. Hence, both conditions must be taken into account, and the exercise of the sense ought always to bear a relation to the condition of its organ.

On observing the operation of the *mental faculties* generally, we find that they also are developed in succession, and that the organs of those of them which are manifested earliest arrive at maturity sooner than the others. The child observes long before it compares and reasons, because the organs of the perceptive are matured before those of the reflecting faculties. For a similar reason, it feels and appreciates affection and kindness before it experiences the sense of justice, the love of praise, or the desire of gain. From a very early age the infant shows an irresistible tendency to *imitation*, or to do as those around it do; and if this be not rightly directed, it becomes as active an instrument in the formation of bad, as it may be made one of good habits.

As pleasure always accompanies the legitimate exercise of a faculty, the natural way to procure healthy enjoyment for a child, is to allow the different faculties to work upon their appropriate objects. Not aware of the real constitution of the human mind, many parents act in opposition to this principle, and seek to amuse the infant at one time by exciting its external senses, at another by dandling, and at a third by some vivid appeal to its wonder. As already remarked, most parents are too little alive to the value of *self-action* and *self-regulation* as the grand means in the formation of character. They are apt to be too officious. They generally do too much, and cannot make up their minds to leave Nature to do her part. "I believe that we often agitate infants too much," remarks, most justly, Madame Necker de Saussure: "we ought not to let them weary, it is true; ennui is a lethargy of the soul; but what constantly brings on this malady is the very excess of distractions with which we think it right to overwhelm the infant. The contrasts are reproduced by each other; and the less excited state is the only one which can be indefinitely prolonged. The more serenity an infant has enjoyed, the more will he afterwards have."

I have often observed the injury inflicted by the restless over-anxiety of parents to excite and amuse very young children, and am convinced that it is a frequent cause of that nervous susceptibility which forms a prominent feature of the constitution, being often continued through the remainder of life, and ultimately becoming the source of great distress of both mind and body. Morally, also, it inflicts an injury, by cultivating the selfish feelings. When a child finds itself unceasingly the object of the exclusive attention of those around it, it comes, in time, to rely wholly upon them for its comfort and entertainment, and to regard them as present for no other purpose than to gratify its desires and devote themselves to its caprices. Its self-esteem, thus early and assiduously fostered, becomes daily more dominant and exacting; and, in proportion as the infant feels its power, it becomes a tyrant in its own petty sphere. The mother who, in the meantime, lavishes all her affection upon its gratification, in the hope of a rich return of love and regard, is wounded and disappointed in reaping only coldness and indifference. And yet, upon the principle that every faculty is strengthened by exercise on its proper objects, what other result could reasonably be hoped for? The practice of yielding everything to the wishes of the child, is naturally a source of future unhappiness, and not of enjoyment. It cultivates self-esteem and love of power, and blights rather than fosters affection. No wonder, then, that the selfishness of pampered pride, instead of the expected beaming of affection, should be eminently the characteristic of spoiled children. The sentiment of self-esteem, in due proportion, is essential to dignity of character—pride and arrogance are its abuses. In some children it is so weak that they need to be encouraged and brought forward, but in general it requires judicious training rather than cultivation.

When, again, in our whole intercourse with children, we occupy ourselves exclusively with their feelings and doings, their dress and appearance, but make little or no effort to draw forth their kindness and good feeling towards others, or to teach them the pleasure of fulfilling duties even at the cost of present self-denial, what can we expect but that they should become the constant subjects of their own thoughts, and the slaves of a contemptible vanity? We educate them to selfishness, self-conceit, and a passion for admiration, and

are disappointed at the success of our efforts! By nature, however, a child is by no means exacting and selfish. It feels its dependence from an early age, and, rightly treated, it will not only repay kindness with kindness and gratitude, but be ready to sacrifice its own wishes to gratify those who have established a claim upon its affection. But where the good feelings of an infant are not called into play by genuine maternal benignity, and its will is yielded to simply from weakness and in order to obviate discontent, the amiable emotions necessarily languish for want of exercise. Here, then, we have the selfish feelings actually strengthened, and the higher feelings indirectly weakened.

Contrasting such management with that of an infant treated from the first with the same kind intentions, but with greater intelligence and higher moral principle, how different do we find the result! Let the mother exercise a salutary control over the selfish desires, and steadily oppose what she feels to be wrong, while every means of legitimate gratification is kindly, cheerfully, and ungrudgingly bestowed; and the child will display in return, not only affection, but a *confidence* in its parent's kindness, which is never shown in the other case, and which affords a striking indication of the accuracy with which even an infant can discriminate the natural language of human feeling.

LAWS OF MENTAL DEVELOPMENT.—The only other principle in the education of infancy to be noticed at present, is one upon which I shall touch very briefly, because it is in some measure implied in those already considered. It is simply, that *the development of the human faculties, and the formation of human character, take place according to fixed laws*, imposed by the Creator for the regulation of both mind and body; and that, to be successful, our endeavours to modify either must be made in conformity with the Divine arrangements. By attending to the conditions under which any organ or function is fitted to act, we may modify or improve its action; but in no case can we alter the nature of the function itself. We may modify, but we can neither annul nor create. Accordingly, it is indispensable to success in education that we adapt our means in such a manner to the nature of the being to be educated, as that they may be in perfect harmony with the laws of its constitution, so that

these laws may themselves become the instruments, as it were, of attaining the desired result.

Each of our faculties is implanted in us by the Creator, with a definite constitution and a definite function; and we can no more add a new feeling or a new power by education or other means, than we can cause apples to grow on one branch of a fig-tree and plums on another. Man will never stand in a right position towards God or towards his fellow-creatures, till he regard himself and the world around him as placed from the beginning in definite relations to each other, and governed by laws emanating from a Wisdom and Beneficence which, though it is impossible for him fully to scan it, he ought humbly to study, and gratefully to venerate, admire, and obey. If he do this, and seek, in the simple spirit of faith and truth, to fulfil the plan marked out in legible characters by the finger of Providence in the laws of the animal economy, he will assuredly reap comfort and improvement from his endeavours. But if he presumptuously step beyond this, and attempt to fashion himself or others according to laws and fancies of his own, he will not less assuredly and deservedly reap pain and trouble for his reward.

Before concluding, I ought perhaps to apologise for some repetitions into which I have been led by an earnest desire to render this work available to parents as a practical guide in the discharge of their important but difficult duties. In some places I have insisted with perhaps wearisome iteration upon truths and principles which, when broadly stated, meet with almost universal assent, and which therefore may seem to be familiar to everybody. But I have done so intentionally, from having often observed with pain, how wide a difference there is between *knowing* a thing as a fact, and being impressed with the importance of *turning it to practical account* in the affairs of life. By a common error in education, we are led to estimate the mere possession of knowledge as all that is required of us, and to overlook the still higher interest attaching to its *uses* and *applications*. Hence, in one sense, we may be said to be familiar with many things, which, strictly speaking, we know but very imperfectly; because, looking upon them as isolated objects,

we remain blind to the reality of their influence. In practice, examples of this are of daily or hourly occurrence; and it is with the hope of rousing the attention of my readers to the necessity of a more comprehensive study of the subject, that I have ventured upon repetitions which I should otherwise have considered unnecessary. In a work not merely to be read and thrown aside, but to become the nursery companion of the mother, a degree of completeness in its separate parts was required, which occasionally called for repetition of what had gone before. But as utility has been my aim throughout, and everything was to be risked to secure it, I trust that the fault will be excused if in any instance repetition has been carried to excess.

APPENDIX

Mortality in Infancy

In the returns mentioned in the text the deaths in infancy are compared with the total deaths at all ages, and as the proportion of children to adults varies very much in different

Of 100,000 *Children born alive, the numbers alive, and the numbers dying, in each of Five subsequent years, in England, in Sixty-three healthy Districts of England, and in Manchester, are as follows:—*

Ages.	In England from 1838–1844.		In Sixty-three healthy Districts of England, from 1849–53.		In Manchester from 1838–44.	
	Out of 100,000 children born, the numbers living at each age under 5 years.	Numbers dying in each year of age.	Out of 100,000 children born, the numbers living at each age under 5 years.	Numbers dying in each year of age.	Out of 100,000 children born, the numbers living at each age under 5 years.	Numbers dying in each year of age.
Year. 0	100,000	14,588	100,000	10,295	100,000	26,892
1	85,412	5,378	89,705	3,005	73,118	11,486
2	80,034	2,914	86,700	1,885	61,632	4,680
3	77,120	1,944	84,815	1,305	56,952	3,236
4	75,176	1,407	83,510	1,051	53,716	2,267
Total No. dying in the first five years of age,		26,231	Total No. dying in the first five yrs. of age,	17,541	Total No. dying in the first five yrs. of age,	48,561

communities, this is a fluctuating standard. To estimate fairly the actual rate of mortality in infancy, the number of children dying must be compared with the total number alive, at the same age. This is done in the table, given on the preceding page, which has been kindly constructed by Dr. Farr, of the Registrar-General's Office, and in which he compares the numbers born alive with the numbers dying, in each of the first five years of life, in all England, in sixty-three healthy districts of England, and in Manchester.

Thus, supposing 100,000 of the children belonging to 1838, born in England on the 1st of January of that year, it will be seen, by reference to the table, that on the 1st of January 1839 only 85,412, and on the 1st of January 1840 only 80,034, would be alive; so that in the first year 14,588, and in the second year 5378, must have died. Again, of 100,000 children born in sixty-three healthy districts of England on the 1st of January 1849, only 89,705 would be alive on the 1st of January 1850, and only 86,700 on the 1st of January 1851; so that in the first of these two years 10,295, and in the second year 3005, of the children had perished. In Manchester, matters are far worse. Of 100,000 born in that populous city on the 1st of January 1838, the table shows that, at the end of that year, only 73,118 would be alive, and at the end of the second year only 61,632 would be living. So, throughout the five years, the rate of mortality may be compared. The general result may be thus stated:—Of all the children born alive in England, 14½ per cent. die in the first year, and nearly 20 per cent., or one-fifth, within the first two years; while in Manchester, more than 26½ per cent. die within the first, and upwards of 38 per cent. within the first two years. Comparing the whole period of the first five years of age in England and Manchester, it will be seen that of all the children born alive throughout England, 26 per cent., or more than one-fourth, and in Manchester, upwards of 48½ per cent., or nearly one-half, die within the first five years; while in sixty-three healthy districts in England not more than 17½ per cent. die in the same period.

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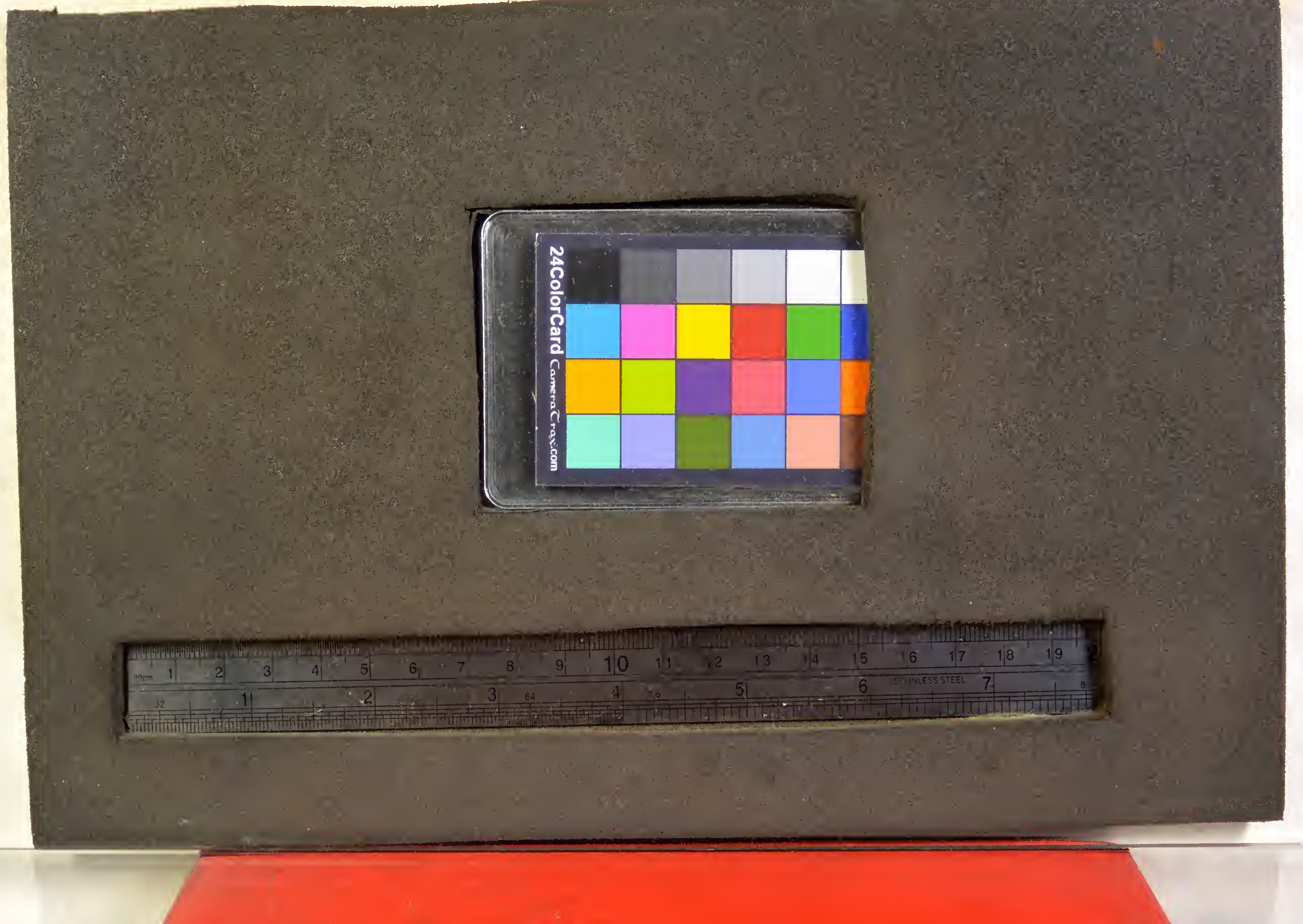
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